

SR - 1

Evaluation And Development Of Water Wave Theories For Engineering Application

VOLUME II

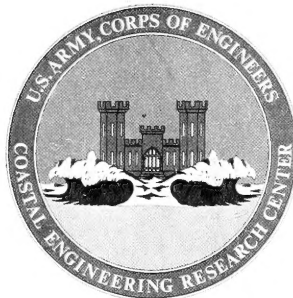
Tabulation Of Dimensionless Stream Function Theory Variables

by

R.G. Dean

SPECIAL REPORT NO.1

NOVEMBER 1974



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**COASTAL ENGINEERING
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<p>Dean, Robert G. Evaluation and development of water wave theories for engineering applications. Fort Belvoir, Va., U.S. Coastal Engineering Research Center, 1974.</p> <p>2v. illus., charts. (U.S. Coastal Engineering Research Center. Special report no. 1) (U.S. Coastal Engineering Research Center. Contract DACW72-67-C-0009). Bibliography: p.97-98.</p> <p>Report in two volumes. Volume I presents the results of a research program to evaluate and develop water wave theories for engineering application. Volume II presents wave tables developed for preliminary design in offshore problems.</p> <p>1. Water waves - Mathematical analysis. 2. Wave theory. 3. Water waves - Tables. 4. Coastal engineering. I. Title. (Series) (Contract) waves - Tables. 4. Coastal engineering. I. Title. (Series) (Contract)</p> <p>TC203 .U581sr no. 1 627 .U581sr</p>	<p>Dean, Robert G. Evaluation and development of water wave theories for engineering applications. Fort Belvoir, Va., U.S. Coastal Engineering Research Center, 1974.</p> <p>2v. illus., charts. (U.S. Coastal Engineering Research Center. Special report no. 1) (U.S. Coastal Engineering Research Center. Contract DACW72-67-C-0009). Bibliography: p.97-98.</p> <p>Report in two volumes. Volume I presents the results of a research program to evaluate and develop water wave theories for engineering application. Volume II presents wave tables developed for preliminary design in offshore problems.</p> <p>1. Water waves - Mathematical analysis. 2. Wave theory. 3. Water waves - Tables. 4. Coastal engineering. I. Title. (Series) (Contract) waves - Tables. 4. Coastal engineering. I. Title. (Series) (Contract)</p> <p>TC203 .U581sr no. 1 627 .U581sr</p>
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Volume I of of this report presents the results of a research program to evaluate and develop water-wave theories for engineering application. Volume II presents wave tables developed for preliminary design in offshore problems. Volume I describes: (1) an evaluation of the degree to which various available wave theories satisfy the nonlinear water-wave mathematical formulation and (2) a comparison of water particle velocities measured in the laboratory with those predicted by a number of available wave theories. The results indicated that Dean's Stream-Function Wave Theory provided generally better agreement with both the mathematical formulation and (Continued)		

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the laboratory data. Volume I also includes a number of examples illustrating the application of the wave tables (described below) to offshore design problems.

Based on the evaluation phase described above, a set of wave tables was developed and is presented as Volume II. The tables consist of dimensionless quantities which describe the kinematic and dynamic fields of a two-dimensional progressive water wave. In addition, quantities are included which are directly applicable to frequently required design calculations and also parameters which should be of interest to the researcher and scientist.

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I INTRODUCTION TO TABLES

The reader is urged to examine Sections IV and V of Volume I of this two-volume report before using the tables in this volume. These sections contain a detailed description of the tables and also examples which use all of the variables in the tables. It is especially important to be sure that the correct dimensionalizing quantities are used for the variables of interest.

In this Volume II, several figures and tables are presented from Volume I to facilitate the use of the tables. These figures and tables are presented without change of numbering (or lettering as the case may be).

Figure 23 presents the dimensionless wave characteristics for the 40 sets of tabulations. Tables D, E and F describe the variables tabulated and all dimensionalizing quantities. Figures 25 through 29 present the results of combined shoaling and refraction for deepwater directions of 0° , 10° , 20° , 40° and 60° , respectively.

If this set of tables is extensively used, as is hoped, undoubtedly the users will note shortcomings, omissions or develop recommendations directed toward the improved usefulness, applicability or efficiency of the tables. The author would welcome information of this type in order that future work may benefit by as wide a range of users' needs as possible.

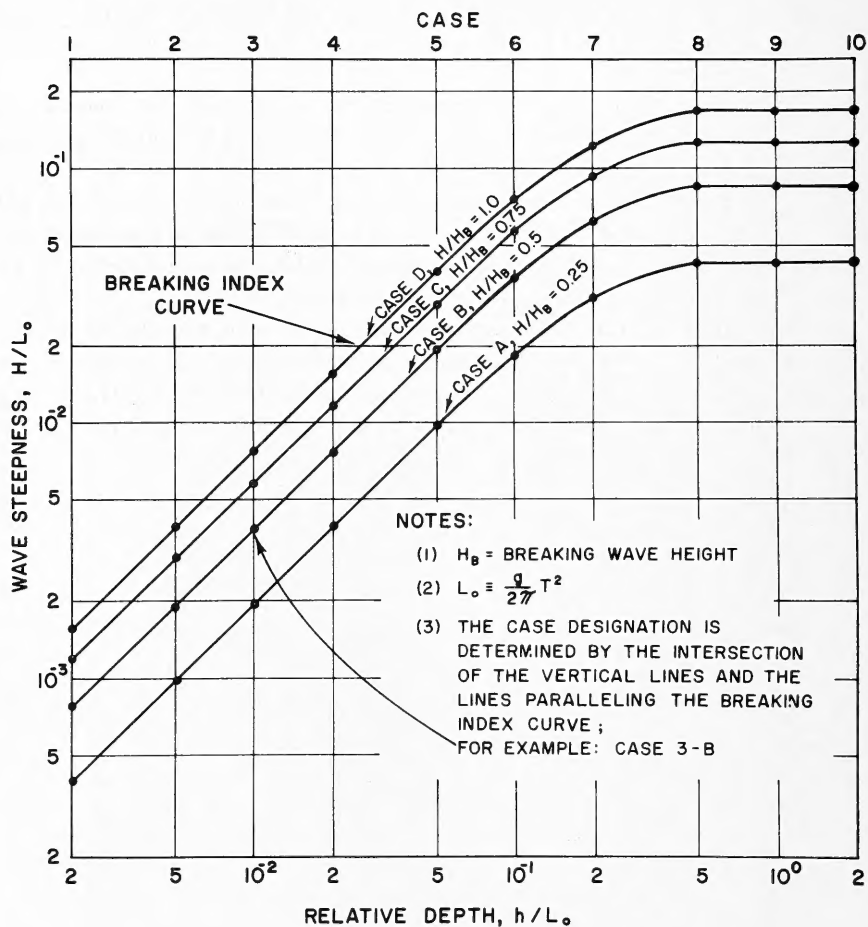


Figure 23 from Volume I showing wave steepnesses (H/L_0) and relative depths (h/L_0) of the 40 wave cases tabulated.

Tables D, E, and F from Volume I Presenting Descriptions of the Dimensionless Tabulated Variables and the Dimensionalizing Quantities Required in Their Use.

TABLE D
Internal Field Variables
(Functions of θ and S)

Variable	Expression for Variable	Dimensionless Form	Equation No.	Presented in Table
Horizontal Water Particle Velocity, $u(\theta, S)$	$u(\theta, S) = - \sum_{n=1}^{NN} X(n) \left[\frac{2\pi}{L} n \right] \cosh \left(\frac{2\pi}{L} n S \right) \cos n\theta$	$\left[\frac{1}{H/T} \right] u$	(21)	I
Vertical Water Particle Velocity, $w(\theta, S)$	$w(\theta, S) = - \sum_{n=1}^{NN} X(n) \left[\frac{2\pi}{L} n \right] \sinh \left(\frac{2\pi}{L} n S \right) \sin n\theta$	$\left[\frac{1}{H/T} \right] w$	(22)	II
Horizontal Water Particle Acceleration, $\frac{Du}{Dt}$	$\frac{Du}{Dt} = (u - c) \frac{\partial u}{\partial X} + w \frac{\partial u}{\partial Z}$ Note: $c \equiv L/T$	$\left[\frac{1}{H/T^2} \right] \frac{Du}{Dt}$	(23)	III
Vertical Water Particle Acceleration, $\frac{Dw}{Dt}$	$\frac{Dw}{Dt} = (u - c) \frac{\partial w}{\partial X} + w \frac{\partial w}{\partial Z}$	$\left[\frac{1}{H/T^2} \right] \frac{Dw}{Dt}$	(24)	IV
Drag Force Component up to a Level, S , $F_D(\theta, S)$	$F_D(\theta, S) = \frac{C_D \rho D}{2} \int_0^S u u ds$ Note: C_D = drag coefficient; D = piling diameter; ρ = mass density of water	$\left(\frac{C_D \rho D^2}{H^3/T^3} \right) F_D$	(25)	V

TABLE D—Continued

Variable	Expression for Variable	Dimensionless Form	Equation No.	Presented in Table
Inertia Force Component up to a Level, S , $F_I(\theta, S)$	$F_I(\theta, S) = \frac{C_M \rho T D^2}{4} \int_0^S \frac{Du}{Dt} ds'$ Note: C_M = inertia coefficient	$\left[\frac{C_M \rho T D^2}{4} \frac{(H/T^2) \bar{h}}{h} \right] F_I$	(26)	VI
Drag Moment Component up to a Level, S , $M_D(\theta, S)$	$M_D(\theta, S) = \frac{C_D \rho D}{2} \int_0^S s' u u ds'$	$\left[\frac{C_D \rho D}{2} \frac{(H/T^2) \bar{h}^2}{h^2} \right] M_D$	(27)	VII
Inertia Moment Component up to a Level, S , $M_I(\theta, S)$	$M_I(\theta, S) = \frac{C_M \rho T D^2}{4} \int_0^S s' \frac{Du}{Dt} ds'$	$\left[\frac{C_M \rho T D^2}{4} \frac{(H/T^2) \bar{h}^2}{h^2} \right] M_I$	(28)	VIII
Dynamic Pressure Component $P_D(\theta, S)$	$P_D(\theta, S) = \gamma \bar{Q} - \frac{\rho}{2} (u - c)^2 + w^2 + \frac{\rho}{2} C^2$ Note: γ = specific weight of water $\equiv \rho g$; Q is defined in Equation 8; \bar{Q} is the average value of Q	$\left[\frac{2}{\gamma H} \right] P_D$	(29)	IX

TABLE E
Variables Depending on θ Only

Variable	Expression for Variable	Dimensionless Form	Equation No.	Presented in Table
Water Surface Displacement, $\eta(\theta)$	$\eta(\theta) = \frac{T}{L} \psi \eta - \frac{T}{L} \sum_{n=1}^{NN} X(n) \sinh \left[\frac{2\pi}{L} n(h + \eta) \right] \cos(n\theta)$	$\left[\frac{1}{H} \right] \eta(\theta)$	(30)	I - IX
Total Drag Force Component, $F_D(\theta)$	Same as Eq. (25), except upper limit is $h + \eta(\theta)$	$\left[\frac{2}{C_D \rho D^2 (H/T)^2 h} \right] F_D$	(31)	V (labeled "Surface")
Total Inertia Force Component, $F_I(\theta)$	Same as Eq. (26), except upper limit is $h + \eta(\theta)$	$\left[\frac{4}{C_M \rho \pi D^2 (H/T)^2 h} \right] F_I$	(32)	VI (labeled "Surface")
Total Drag Moment Component, $M_D(\theta)$	Same as Eq. (27), except upper limit is $h + \eta(\theta)$	$\left[\frac{2}{C_D \rho D^2 (H/T)^2 h^2} \right] M_D$	(33)	VII (labeled "Surface")
Total Inertia Moment Component, $M_I(\theta)$	Same as Eq. (28) except upper limit is $h + \eta(\theta)$	$\left[\frac{4}{C_M \rho \pi D^2 (H/T)^2 h^2} \right] M_I$	(34)	VIII (labeled "Surface")
Kinematic Free Surface Boundary Condition Error, $\epsilon_1(\theta)$	$\epsilon_1(\theta) = \frac{\partial \eta}{\partial x} - \frac{w}{u - C}$	Expression given is in dimensionless form	(35)	X Item 1 Linear Theory Item 2 Stream Function Theory
Dynamic Free Surface Boundary Condition Error, $\epsilon_2(\theta)$	$\epsilon_2(\theta) = Q(\theta) - \bar{Q}$ Note: $\bar{Q} \equiv \bar{Q}(\theta)$	$\left[\frac{1}{H} \right] \epsilon_2$	(36)	X Item 3, Item 4, Stream Function Theory

TABLE F
Overall Variables
(Do Not Depend on θ or S)

Variable	Expression for Variable	Dimensionless Form	Equation No.	Presented in Table
Wave Length, L	L is determined from Stream function solution (no explicit expression)	$\left[\frac{2\pi}{gT} \right] L$	(37)	XI Item 1
Average Potential Energy, P_E	$P_E = \frac{\gamma}{4\pi} \int_0^{2\pi} \eta^2(\theta) d\theta$	$\left[\frac{8}{\gamma H^2} \right] P_E$	(38)	XI Item 2
Average Kinetic Energy, KE	$KE = \frac{\rho}{4\pi} \int_0^{2\pi} \int_0^{h+\eta} (u^2 + w^2) ds d\theta$	$\left[\frac{8}{\gamma H^2} \right] KE$	(39)	XI Item 3
Average Total Energy, TE	$TE = PE + KE$	$\left[\frac{8}{\gamma H^2} \right] TE$	(40)	XI Item 4
Average Total Energy Flux, F_{TE}	$F_{TE} = \frac{1}{2\pi} \int_0^{2\pi} \int_0^{h+\eta} u \left(p_D + \rho g z + \frac{\rho}{2} (u^2 + w^2) \right) ds d\theta$	$\left[\frac{8}{\gamma H^2 L/T} \right] F_{TE}$	(41)	XI Item 5
Group Velocity, C_G	$C_G = \frac{F_{TE}}{TE}$	$\left[\frac{1}{L/T} \right] C_G$	(42)	XI Item 6
Average Momentum M	$M = \frac{1}{2\pi} \int_0^{2\pi} \int_0^{h+\eta} \rho u ds d\theta$	$\left[\frac{8L/T}{\gamma H^2} \right] M$	(43)	XI Item 7

TABLE F—Continued

Variable	Expression for Variable	Dimensionless Form	Equation No.	Presented in Table
Average Momentum Flux, in Wave Direction, F_{m_x}	$F_{m_x} = \frac{1}{2\pi} \int_0^{2\pi} \int_0^{h+\eta} \left(p_D + \rho u^2 \right) ds d\theta$	$\left(\frac{8}{\gamma H^2} \right) F_{m_x}$	(44)	XI Item 8
Average Momentum Flux, Transverse to Wave Direction F_{m_y}	$F_{m_y} = \frac{1}{2\pi} \int_0^{2\pi} \int_0^{h+\eta} p_D ds d\theta$	$\left(\frac{8}{\gamma H^2} \right) F_{m_y}$	(45)	XI Item 9
Root-Mean-Square (RMS) and Maximum (Max) Kinematic Free Surface Boundary Condition Errors, $\sqrt{\epsilon_1^2}$ and $ \epsilon_1 _{\max}$	See Eq. (35)	Expression Given is in Dimensionless Form	(46)	XI Items 10 & 12
RMS and Max Dynamic Free Surface Boundary Condition Errors, $\sqrt{\epsilon_2^2}$ and $ \epsilon_2 _{\max}$	See Eq. (36)	$\left(\frac{1}{H} \right) \sqrt{\epsilon_2^2} \text{ and } \left(\frac{1}{H} \right) \epsilon_2 _{\max}$	(47)	XI Items 11 & 13
Kinematic Free Surface Breaking Parameter, β_1	$\beta_1 = \frac{u}{C}, u \text{ evaluated at } \left(\theta = 0^\circ \right) \left(s = h + \eta \right)$	Expression Given is in Dimensionless Form	(48)	XI Item 14
Dynamic Free Surface Breaking Parameter β_2	$\beta_2 = - \frac{1}{g} \frac{Dw}{Dt}, Dw \text{ evaluated at } \left(\theta = 0^\circ \right) \left(s = h + \eta \right)$	Expression Given is in Dimensionless Form	(49)	XI Item 15

Note: In addition to values tabulated, the results include combined refraction/shoaling effects over idealized bathymetry; these results are presented in graphical form and will be described later.

Figures 25, 26, 27, 28, and 29 from Volume I Presenting Graphical Results for Combined Shoaling-Refraction for Deepwater Wave Directions, $\alpha_o = 0^\circ, 10^\circ, 20^\circ, 40^\circ,$ and 60° , Respectively.

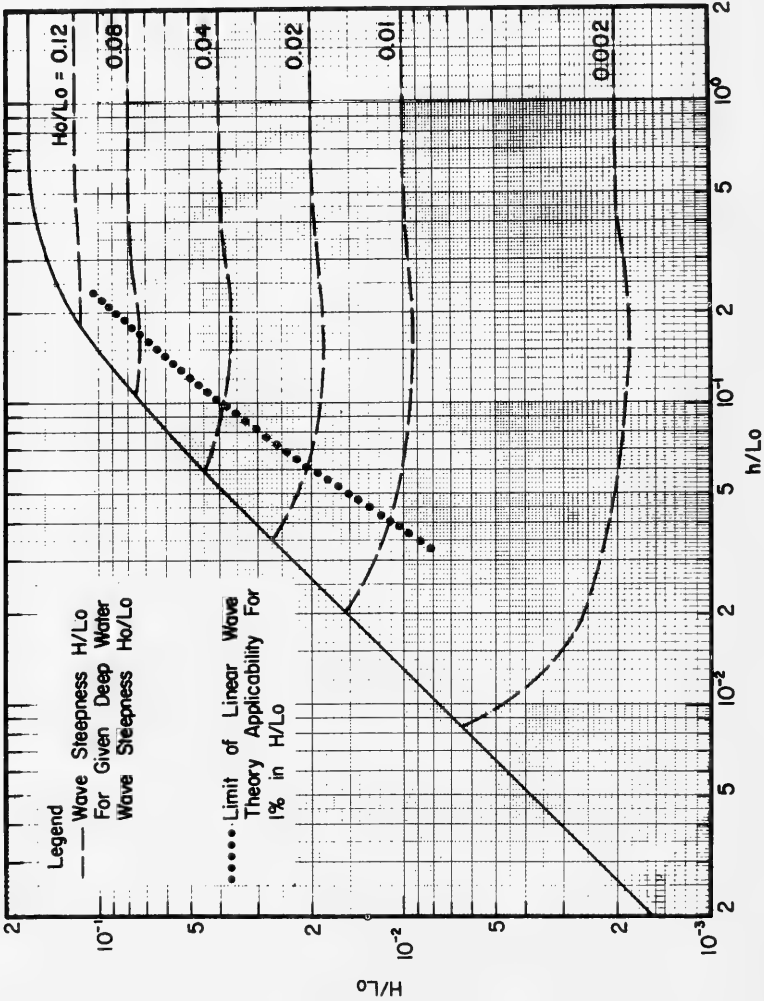


Figure 25. Combined shoaling-refraction for a deepwater wave direction, $\alpha_o = 0^\circ$.

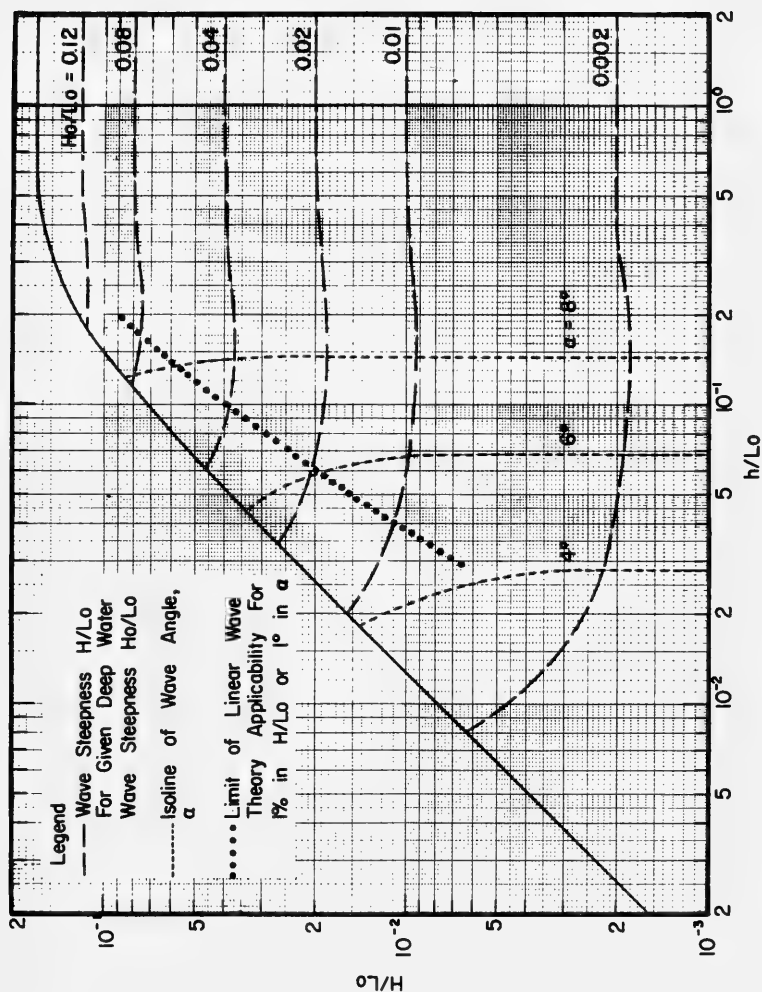


Figure 26. Combined shoaling-refraction for a deepwater wave direction, $\alpha_o = 10^\circ$.

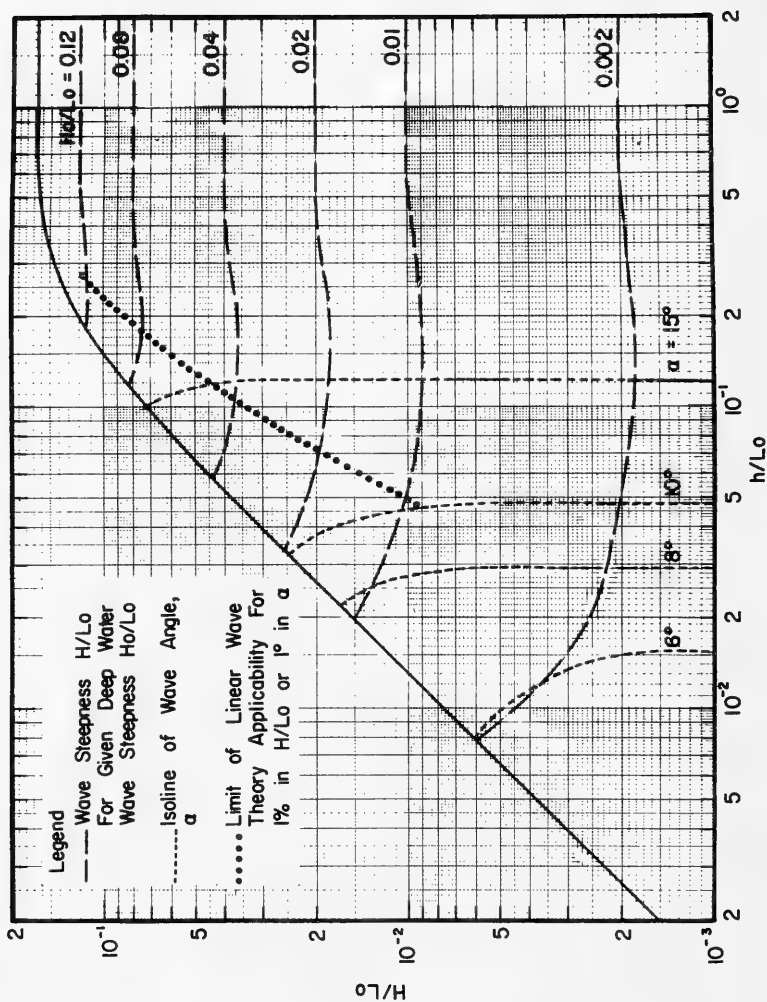


Figure 27. Combined shoaling-refraction for a deepwater wave direction, $\alpha_0 = 20^\circ$.

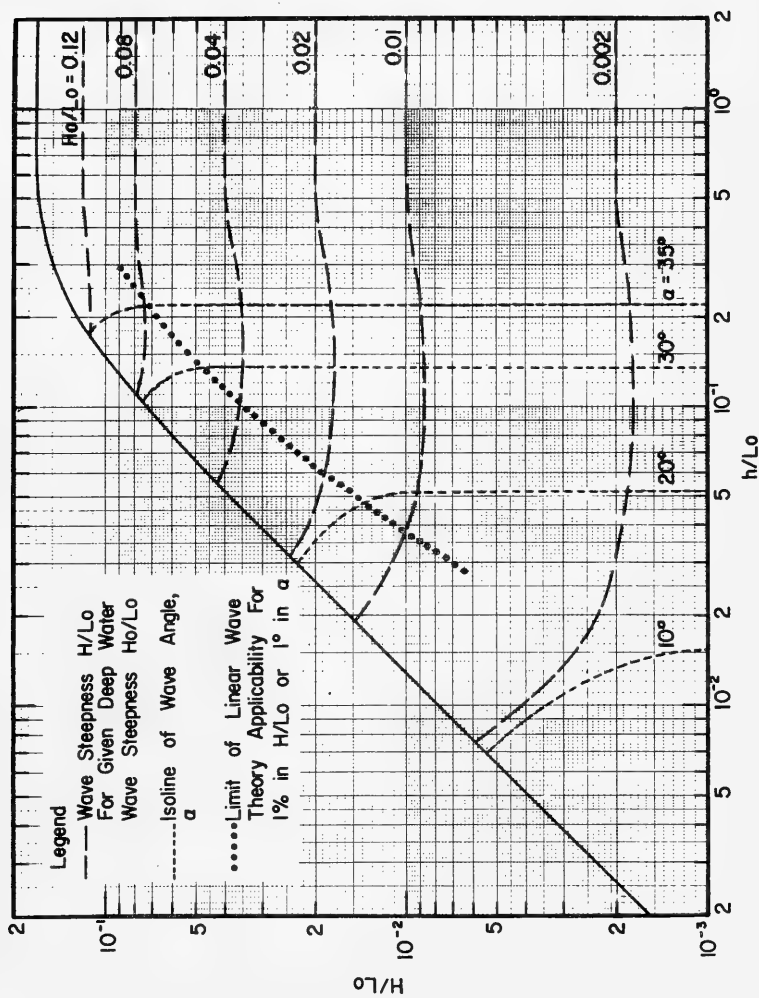


Figure 28. Combined shoaling-refraction for a deepwater wave direction, $\alpha_o = 40^\circ$.

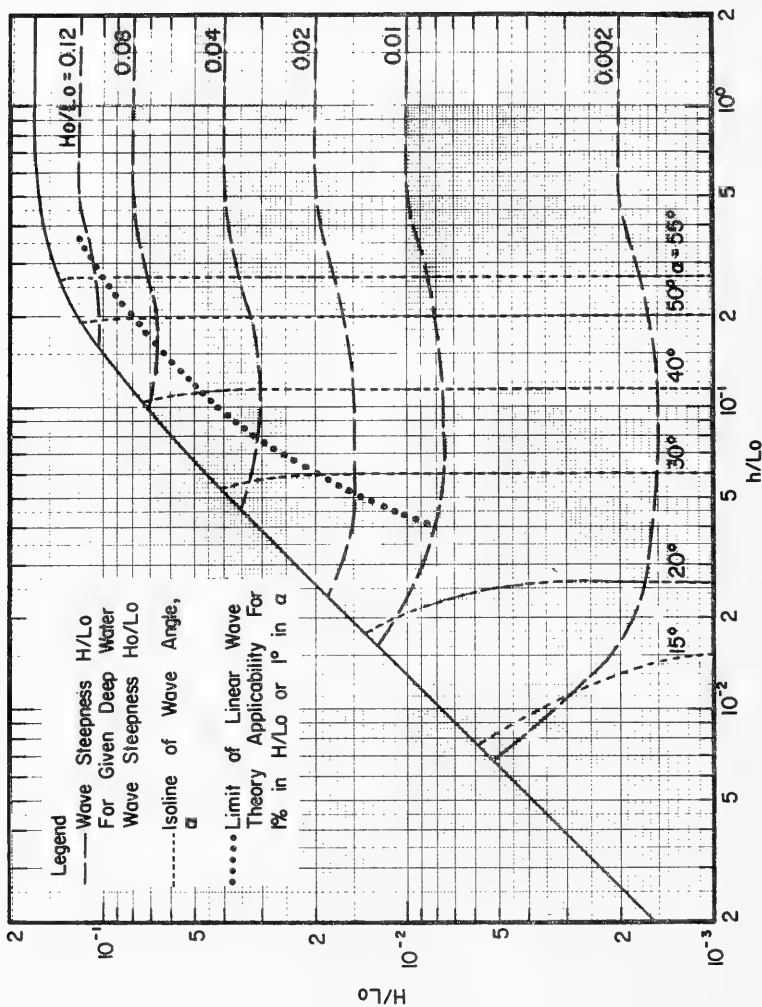


Figure 29. Combined shoaling-refraction for a deepwater wave direction, $\alpha_o = 60^\circ$.

II STREAM-FUNCTION THEORY TABULATIONS IN DIMENSIONLESS FORM FOR 40 SETS OF WAVE CHARACTERISTICS

CASE 1=A

19TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318)^{0.5} T^{**2}$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
DPT = WATER DEPTH L = WAVE LENGTH
PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .00390 DPT/LO = .00200

H/DPT = .194829

L/LO = .119648 PSI/(G*H*T) = -.000178

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) =	-.287475-01	X(2)/(H*T*G) =	-.128289+01
X(3)/(H*T*G) =	-.713786+02	X(4)/(H*T*G) =	-.422235+02
X(5)/(H*T*G) =	-.250337+02	X(6)/(H*T*G) =	-.153172+02
X(7)/(H*T*G) =	-.927237+03	X(8)/(H*T*G) =	-.456664+03
X(9)/(H*T*G) =	-.332623+03	X(10)/(H*T*G) =	-.197489+03
X(11)/(H*T*G) =	-.116371+03	X(12)/(H*T*G) =	-.468235+04
X(13)/(H*T*G) =	-.396098+04	X(14)/(H*T*G) =	-.228822+04
X(15)/(H*T*G) =	-.130467+04	X(16)/(H*T*G) =	-.741167+05
X(17)/(H*T*G) =	-.412900+05	X(18)/(H*T*G) =	-.230502+05
X(19)/(H*T*G) =	-.124741+05		

CASE 1-A

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.910	.600	.199	.009	.080	.090	.090	.090	.090
	45.0%	18.0%	-136.6%	*****	499.3%	244.1%	3.8%	333.9%	453.4%
SURFACE	51.990	33.565	10.540	.258	-4.034	-4.902	-4.921	-4.936	-4.937
S/DEPTH=1.1	45.9%	17.5%	-150.6%	*****	507.3%	248.3%	1.0%	335.2%	467.9%
S/DEPTH=1.0	49.681	33.311	10.705	.262					
S/DEPTH= .9	43.558	33.107	11.096	.495	-4.407	-4.901	-4.923	-4.935	-4.936
S/DEPTH= .8	42.3%	32.920	11.458	.705	508.9%	248.1%	1.1%	335.2%	468.0%
S/DEPTH= .7	41.2%	32.750	11.733	.889	-4.378	-4.900	-4.924	-4.935	-4.934
S/DEPTH= .6	40.12%	32.600	11.985	1.050	511.2%	247.9%	1.2%	334.8%	467.6%
S/DEPTH= .5	39.3%	32.471	12.195	1.186	-4.353	-4.899	-4.925	-4.934	-4.933
S/DEPTH= .4	38.6%	32.365	12.365	1.297	513.2%	247.8%	1.3%	334.4%	467.8%
S/DEPTH= .3	38.0%	32.281	12.495	1.384	-4.331	-4.898	-4.926	-4.933	-4.932
S/DEPTH= .2	37.5%	32.220	12.588	1.445	514.9%	247.7%	1.4%	334.1%	466.8%
S/DEPTH= .1	37.12%	32.184	12.643	1.483	-4.312	-4.897	-4.926	-4.933	-4.932
S/DEPTH= .0	37.0%	32.166	12.661	1.495	516.0%	247.7%	1.5%	333.8%	466.5%
	36.9%	32.172	12.661	1.495	-4.297	-4.896	-4.927	-4.931	-4.931
		14.6%	-107.0%	*****	518.7%	247.6%	1.6%	333.4%	466.0%
					-4.277	-4.895	-4.927	-4.931	-4.931
					519.0%	247.5%	1.7%	333.3%	465.9%
					-4.272	-4.895	-4.927	-4.931	-4.931
					519.8%	247.5%	1.7%	333.2%	465.8%
					-4.270	-4.895	-4.928	-4.931	-4.931
					519.9%	247.5%	1.7%	333.2%	465.7%

CASE 11A

TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	45.0%	18.0%	=136.6%	1.000	.009	.080	.090	.090	.090
				*****	*****	499.3%	244.1%	3.8%	=323.9%
									=453.4%
SURFACE	.000	15.209	10.052	4.012	.439	.006	.011	.010	.000
	*****	96.1%	88.3%	57.6%	*****	*****	*****	*****	*****
S/DEPTH=1.1	.000	14.927							
	*****	96.0%							
S/DEPTH=1.0	.000	13.514	9.674	4.006					
	*****	95.9%	88.9%	60.8%					
S/DEPTH=.9	.000	11.778	8.702	3.637	.405	.007	.010	.009	.000
	*****	95.8%	88.9%	61.3%	*****	*****	*****	*****	*****
S/DEPTH=.8	.000	10.309	7.729	3.358	.364	.008	.008	.007	.000
	*****	95.8%	86.9%	61.5%	*****	*****	*****	*****	*****
S/DEPTH=.7	.000	8.899	6.758	2.870	.321	.008	.006	.006	.000
	*****	95.7%	86.9%	61.6%	*****	*****	*****	*****	*****
S/DEPTH=.6	.000	7.538	5.788	2.474	.278	.008	.005	.004	.000
	*****	95.7%	88.9%	62.0%	*****	*****	*****	*****	*****
S/DEPTH=.5	.000	6.220	4.819	2.072	.233	.007	.004	.003	.000
	*****	95.6%	88.9%	62.2%	*****	*****	*****	*****	*****
S/DEPTH=.4	.000	4.935	3.953	1.664	.188	.006	.003	.003	.000
	*****	95.6%	88.9%	62.3%	*****	*****	*****	*****	*****
S/DEPTH=.3	.000	3.678	2.888	1.252	.141	.005	.002	.002	.000
	*****	95.5%	88.9%	62.5%	*****	*****	*****	*****	*****
S/DEPTH=.2	.000	2.441	1.925	.856	.094	.003	.001	.001	.000
	*****	95.5%	88.9%	62.5%	*****	*****	*****	*****	*****
S/DEPTH=.1	.000	1.217	.962	.319	.047	.002	.001	.001	.000
	*****	95.5%	88.9%	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
FT/HEIGHT =	.910	.600	.199	.009	-.080	-.090	-.090	-.090	-.090
	45.0%	18.0%	-136.6%	*****	499.3%	244.1%	3.8%	-323.9%	-453.4%
SURFACE	.000	896.600	553.361	215.459	23.890	-1.019	1.415	1.340	.000
	*****	96.9%	90.1%	62.4%	*****	*****	*****	*****	*****
S/DEPTH=1.1	.000	888.554							
	*****	96.9%							
S/DEPTH=1.0	.000	844.403	553.970	215.575					
	*****	96.7%	90.1%	62.5%					
S/DEPTH= .9	.000	805.563	554.940	222.042	24.598	-.632	1.209	1.141	.000
	*****	96.6%	90.1%	63.7%	*****	*****	*****	*****	*****
S/DEPTH= .8	.000	771.685	555.230	227.318	25.395	-.240	1.005	.942	.000
	*****	96.4%	90.1%	64.8%	*****	*****	*****	*****	*****
S/DEPTH= .7	.000	742.466	555.050	232.900	26.131	.080	.842	.782	.000
	*****	96.1%	90.2%	65.4%	*****	*****	*****	*****	*****
S/DEPTH= .6	.000	717.646	554.573	237.290	26.791	.338	.715	.655	.000
	*****	96.2%	90.2%	66.1%	*****	*****	*****	*****	*****
S/DEPTH= .5	.000	697.005	553.945	240.991	27.367	.544	.613	.556	.000
	*****	96.0%	90.1%	66.6%	*****	*****	*****	*****	*****
S/DEPTH= .4	.000	680.360	553.281	244.008	27.848	.703	.537	.480	.000
	*****	95.9%	90.1%	67.1%	*****	*****	*****	*****	*****
S/DEPTH= .3	.000	667.563	552.673	246.348	28.330	.823	.480	.424	.000
	*****	95.9%	90.1%	67.4%	*****	*****	*****	*****	*****
S/DEPTH= .2	.000	658.502	552.190	248.015	28.506	.905	.442	.385	.000
	*****	95.8%	90.1%	67.6%	*****	*****	*****	*****	*****
S/DEPTH= .1	.000	653.097	551.882	249.013	28.673	.954	.420	.363	.000
	*****	95.8%	90.1%	67.8%	*****	*****	*****	*****	*****
S/DEPTH= .0	.000	651.301	551.776	249.346	28.729	.970	.412	.355	.000
	*****	95.8%	90.1%	67.8%	*****	*****	*****	*****	*****

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TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

THETA =	0	10.0	20.0	30.0	50.0	100.0	130.0	180.0
ETA/HEIGHT=	45.0%	.910	.600	.199	.009	.080	.090	.090
		16.0%	.136.6%	.000%	.000%	.499.3%	3.6%	.323.9%
SURFACE	-717.560	-69.976	270.840	149.656	20.160	.695	.606	1.095
S/DEPTH=1.1	97.3%	72.6%	106.7%	111.0%	.000%	.000%	.000%	.000%
S/DEPTH=1.0	-658.339	-70.433						
S/DEPTH= .9	97.0%	72.8%						
S/DEPTH= .8	-585.515	-71.491	258.381	149.407				
S/DEPTH= .7	97.0%	75.5%	106.4%	110.1%	18.439	.678	.507	.909
S/DEPTH= .6	-516.577	-70.089	227.402	134.770				
S/DEPTH= .5	96.9%	77.5%	106.6%	110.1%	.000%	.000%	.000%	.000%
S/DEPTH= .4	-451.049	-68.646	198.053	120.019	16.409	.641	.407	.722
S/DEPTH= .3	96.8%	79.0%	106.7%	110.1%	.000%	.000%	.000%	.000%
S/DEPTH= .2	-388.480	-61.519	170.150	105.174	14.382	.589	.325	.570
S/DEPTH= .1	96.8%	80.1%	106.8%	110.1%	.000%	.000%	.000%	.000%
S/DEPTH= .0	-328.443	-55.017	143.510	90.258	12.352	.524	.256	.445
S/DEPTH= .9	96.8%	80.9%	106.9%	110.1%	.000%	.000%	.000%	.000%
S/DEPTH= .8	-270.537	-47.404	117.951	75.286	10.314	.450	.199	.342
S/DEPTH= .7	96.7%	81.6%	107.0%	110.1%	.000%	.000%	.000%	.000%
S/DEPTH= .6	-214.377	-38.913	93.288	60.272	8.267	.369	.150	.255
S/DEPTH= .5	96.7%	82.0%	107.1%	110.0%	.000%	.000%	.000%	.000%
S/DEPTH= .4	-159.594	-29.748	69.341	45.228	6.210	.281	.107	.181
S/DEPTH= .3	96.7%	.000%	107.2%	110.0%	.000%	.000%	.000%	.000%
S/DEPTH= .2	-105.833	-20.096	45.931	30.163	4.145	.190	.069	.116
S/DEPTH= .1	96.6%	.000%	107.2%	.000%	.000%	.000%	.000%	.000%
S/DEPTH= .0	-52.748	-10.126	22.876	15.084	2.074	.096	.034	.057
S/DEPTH= .9	96.6%	.000%	.000%	.000%	.000%	.000%	.000%	.000%
S/DEPTH= .8	-45.0%	.000%	.000%	.000%	.000%	.000%	.000%	.000%
S/DEPTH= .7	.000%	.000%	.000%	.000%	.000%	.000%	.000%	.000%
S/DEPTH= .6	.000%	.000%	.000%	.000%	.000%	.000%	.000%	.000%
S/DEPTH= .5	.000%	.000%	.000%	.000%	.000%	.000%	.000%	.000%
S/DEPTH= .4	.000%	.000%	.000%	.000%	.000%	.000%	.000%	.000%
S/DEPTH= .3	.000%	.000%	.000%	.000%	.000%	.000%	.000%	.000%
S/DEPTH= .2	.000%	.000%	.000%	.000%	.000%	.000%	.000%	.000%
S/DEPTH= .1	.000%	.000%	.000%	.000%	.000%	.000%	.000%	.000%
S/DEPTH= .0	.000%	.000%	.000%	.000%	.000%	.000%	.000%	.000%

TABLE V=DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

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TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	150.0	180.0
ETA/HEIGHT =	.910	.600	.199	.009	-.080	-.090	-.090	-.090	-.090
	45.0%	18.0%	-136.6%	*****	499.3%	249.1%	3.8%	-323.9%	-453.4%
SURFACE	.000	815.575	575.093	238.514	26.612	.364	.692	.633	.000
	*****	96.3%	89.6%	63.4%	*****	*****	*****	*****	*****
S/DEPTH=1.1	.000	800.431							
	*****	96.2%							
S/DEPTH=1.0	.000	713.829	553.675	238.145		.431	.584	.532	.000
	*****	96.1%	90.1%	66.2%		*****	*****	*****	*****
S/DEPTH= .9	.000	631.373	498.223	216.259		*****	*****	*****	.000
	*****	96.1%	90.1%	66.5%		*****	*****	*****	*****
S/DEPTH= .8	.000	552.551	442.710	193.760	22.067	.474	.474	.428	.000
	*****	96.0%	90.1%	66.8%	*****	*****	*****	*****	*****
S/DEPTH= .7	.000	476.881	387.193	170.718	19.490	.482	.382	.342	.000
	*****	96.0%	90.1%	67.0%	*****	*****	*****	*****	*****
S/DEPTH= .6	.000	403.911	331.710	147.203	16.844	.460	.304	.270	.000
	*****	95.9%	90.1%	67.2%	*****	*****	*****	*****	*****
S/DEPTH= .5	.000	333.212	276.283	123.283	14.135	.416	.238	.210	.000
	*****	95.9%	90.1%	67.4%	*****	*****	*****	*****	*****
S/DEPTH= .4	.000	264.377	220.922	99.028	11.573	.353	.181	.158	.000
	*****	95.8%	90.1%	67.5%	*****	*****	*****	*****	*****
S/DEPTH= .3	.000	197.012	165.625	74.504	8.569	.276	.130	.113	.000
	*****	95.8%	90.1%	67.6%	*****	*****	*****	*****	*****
S/DEPTH= .2	.000	130.740	110.383	49.780	5.731	.190	.064	.073	.000
	*****	95.8%	90.1%	67.7%	*****	*****	*****	*****	*****
S/DEPTH= .1	.000	65.190	55.181	24.924	2.671	.096	.041	.036	.000
	*****	95.8%	90.1%	*****	*****	*****	*****	*****	*****
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	45.0%	.600	.199	.009	.080	.090	.090	.090	.090
		18.0%	.136.6%	*****	499.3%	244.1%	3.8%	-323.9%	-453.4%
SURFACE	1598.651	674.935	73.097	.449	-9.177	-11.582	-11.704	-11.744	-11.745
S/DEPTH=1.1	70.4%	32.2%	*****	*****	*****	*****	*****	*****	*****
	1365.838	653.769							
S/DEPTH=1.0	65.4%	30.0%	68.647	.448					
	1100.175	536.495	*****	*****	-7.624	-9.716	9.825	-9.859	-9.855
S/DEPTH=.9	64.3%	29.1%	57.356	.434	*****	*****	*****	*****	*****
	870.855	431.121	*****	*****	-5.984	-7.675	-7.764	-7.789	-7.785
S/DEPTH=.8	63.6%	28.7%	*****	*****	*****	*****	*****	*****	*****
	674.161	339.078	46.565	.403	*****	*****	*****	*****	*****
S/DEPTH=.7	62.4%	28.4%	*****	*****	-4.555	-5.875	-5.946	-5.963	-5.959
	506.993	258.215	36.497	.356	*****	*****	*****	*****	*****
S/DEPTH=.6	62.2%	28.0%	*****	*****	-3.329	-4.515	-4.369	-4.380	-4.378
	366.784	188.815	27.354	.294	*****	*****	*****	*****	*****
S/DEPTH=.5	61.7%	27.8%	*****	*****	-2.302	-2.996	-3.034	-3.042	-3.040
	251.427	130.592	19.314	.226	*****	*****	*****	*****	*****
S/DEPTH=.4	61.2%	27.5%	*****	*****	-1.468	-1.917	-1.942	-1.947	-1.945
	159.221	83.300	12.528	.156	*****	*****	*****	*****	*****
S/DEPTH=.3	60.8%	27.3%	*****	*****	*****	*****	*****	*****	*****
	88.831	46.734	7.120	.093	-1.823	-1.078	-1.092	-1.095	-1.094
S/DEPTH=.2	60.5%	20.732	3.168	.043	*****	*****	*****	*****	*****
	39.251	20.732	*****	*****	-3.365	-4.479	-4.486	-4.487	-4.486
S/DEPTH=.1	9.779	5.177	.801	.011	*****	*****	*****	*****	*****
	*****	*****	*****	*****	-1.091	-1.120	-1.121	-1.122	-1.121
S/DEPTH=.0	.000	.000	*****	*****	*****	*****	*****	*****	*****
	*****	*****	*****	*****	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA =	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.910	.600	.199	.009	.090	.090	.090	.090
	45.0%	18.0%	=136.6%	*****	499.3%	244.1%	=323.9%	=453.4%
SURFACE	.000	480.530	299.002	116.633	12.696	.027	.415	.386
	*****	96.5%	86.1%	59.3%	*****	*****	*****	*****
S/DEPTH=1.1	.000	463.742						
	*****	96.4%						
S/DEPTH=1.0	.000	372.773	277.170	116.264				
	*****	96.3%	90.1%	65.3%				
S/DEPTH= .9	.000	294.408	224.492	95.477	10.771	.090	.314	.289
	*****	96.2%	90.1%	65.8%	*****	*****	*****	*****
S/DEPTH= .8	.000	227.381	177.306	76.358	8.646	.127	.220	.201
	*****	96.1%	90.1%	66.3%	*****	*****	*****	*****
S/DEPTH= .7	.000	170.604	135.668	59.081	6.714	.133	.151	.137
	*****	96.0%	90.1%	66.6%	*****	*****	*****	*****
S/DEPTH= .6	.000	123.153	96.603	43.800	4.994	.119	.100	.090
	*****	96.0%	90.1%	66.9%	*****	*****	*****	*****
S/DEPTH= .5	.000	84.252	69.118	30.647	3.505	.095	.064	.057
	*****	95.9%	90.1%	67.2%	*****	*****	*****	*****
S/DEPTH= .4	.000	53.262	44.205	19.734	2.263	.067	.038	.033
	*****	95.9%	90.1%	*****	*****	*****	*****	*****
S/DEPTH= .3	.000	29.674	24.851	11.153	1.282	.040	.020	.018
	*****	95.8%	90.1%	*****	*****	*****	*****	*****
S/DEPTH= .2	.000	13.098	11.040	4.974	.572	.019	.009	.007
	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .1	.000	3.261	2.759	1.246	.144	.005	.002	.002
	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)									
THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	45.0%	91.0	.600	.199	.009	.080	.090	.090	.090
			18.0%	*****	*****	499.3%	244.1%	3.6%	323.0%
									453.4%
SURFACE	1.821	1.203	.397	.017	.0162	.0180	.0180	.0181	.0181
S/DEPTH=1.1	46.4%	20.0%	-132.3%	*****	500.3%	255.4%	16.0%	325.5%	-465.4%
S/DEPTH=1.0	45.4%	19.9%							
S/DEPTH=.9	44.2%	19.7%	.403	.018					
S/DEPTH=.8	43.1%	19.5%	-128.3%	*****	502.0%	255.3%	16.2%	325.4%	-465.2%
S/DEPTH=.7	42.1%	19.3%	-119.6%	.027	.0159	.0180	16.4%	325.0%	-465.0%
S/DEPTH=.6	41.2%	19.1%	-112.5%	.035	504.6%	255.12%	16.4%	325.0%	-465.0%
S/DEPTH=.5	40.5%	18.9%	-106.7%	.042	506.8%	255.12%	16.5%	324.6%	-464.8%
S/DEPTH=.4	39.8%	18.7%	-102.0%	.048	508.7%	255.1%	16.7%	324.2%	-464.2%
S/DEPTH=.3	38.8%	18.5%	-98.3%	.053	510.4%	255.1%	16.8%	323.9%	-463.8%
S/DEPTH=.2	38.5%	18.4%	-95.3%	.058	511.7%	255.1%	16.9%	323.7%	-463.7%
S/DEPTH=.1	38.3%	18.3%	-93.1%	.061	512.6%	255.0%	16.9%	323.5%	-463.5%
S/DEPTH=.0	38.2%	18.3%	-91.6%	.063	513.6%	255.0%	17.0%	323.3%	-463.3%
	38.1%	18.2%	-90.7%	.065	514.0%	255.0%	17.0%	323.0%	-463.0%
	38.0%	18.1%	-90.4%	.065	514.2%	255.0%	17.0%	323.0%	-463.0%

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TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.001	.001	.001	.001	.000	.001	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.012	.011	.009	.006	.002	.010	.011	.002	.012
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.001	.001	.000	.000	.000	.000	.000	.000	.000

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TABLE XI=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.120 (6.5%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.205 (-143.5%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.218 (-130.4%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.424 (-156.7%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.417 (-138.8%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.985 (.9%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.434 (-130.4%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.606 (-146.2%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.189 (-162.6%)

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TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.000761	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.006315	STREAM FUNCTION	.000319
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.001142	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.011790	STREAM FUNCTION	.001154
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.097858	STREAM FUNCTION	.169314
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.001211	STREAM FUNCTION	.044500

CASE 1=8

19TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/g, 28318)^{1/3} T^{**2}$
 H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .000779 DPT/LO = .002000
 H/DPT = .389717
 L/LO = .128262 PSI/(G*H*T) = *.000246

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) =	-.207144e+01	X(2)/(H*T*G) =	-.973663e+02
X(3)/(H*T*G) =	-.585442e+02	X(4)/(H*T*G) =	-.382933e+02
X(5)/(H*T*G) =	-.258161e+02	X(6)/(H*T*G) =	-.176628e+02
X(7)/(H*T*G) =	-.120946e+02	X(8)/(H*T*G) =	-.829635e+03
X(9)/(H*T*G) =	-.565533e+03	X(10)/(H*T*G) =	-.384799e+03
X(11)/(H*T*G) =	-.259436e+03	X(12)/(H*T*G) =	-.174668e+03
X(13)/(H*T*G) =	-.116093e+03	X(14)/(H*T*G) =	-.771778e+04
X(15)/(H*T*G) =	-.504252e+04	X(16)/(H*T*G) =	-.330678e+04
X(17)/(H*T*G) =	-.211748e+04	X(18)/(H*T*G) =	-.137184e+04
X(19)/(H*T*G) =	-.859499e+05		

CASE 1=B

TABLE 1= DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)									
THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	150.0	180.0
ETA/HEIGHT=	.958	.413	.049	.039	.062	.061	.061	.062	.062
	46.7	19.3	856.2	*****	621.2	310.5	41.7	518.6	710.5
SURFACE	54.619	22.857	2.222	2.204	3.340	3.238	3.207	3.291	3.287
	48.5	21.3	*****	*****	641.1	324.5	51.9	552.3	752.1
S/DEPTH=1.3	53.056								
	100.0								
S/DEPTH=1.2	50.901								
	48.7								
S/DEPTH=1.1	48.995								
	48.6								
S/DEPTH=1.0	47.317								
	40.7								
S/DEPTH= .9	45.848	23.511	2.762	2.098	3.320	3.241	3.213	3.287	3.280
	38.8	18.4	853.6	*****	642.9	321.9	51.5	553.1	753.9
S/DEPTH= .8	44.572	23.417	3.161	1.985	3.297	3.244	3.221	3.282	3.272
	37.2	17.8	732.5	*****	646.1	323.4	51.0	553.6	755.9
S/DEPTH= .7	43.475	23.495	3.511	1.884	3.278	3.247	3.227	3.279	3.266
	35.6	17.3	648.8	*****	648.7	323.1	50.6	553.7	756.7
S/DEPTH= .6	42.547	23.553	3.813	1.796	3.263	3.249	3.232	3.276	3.261
	34.3	16.9	589.0	*****	650.8	322.7	50.2	553.6	757.2
S/DEPTH= .5	41.777	23.594	4.067	1.721	3.250	3.250	3.236	3.274	3.258
	33.1	16.6	545.6	*****	652.5	322.5	49.9	553.8	757.7
S/DEPTH= .4	41.157	23.623	4.273	1.660	3.241	3.251	3.239	3.272	3.255
	32.2	16.4	514.0	*****	653.9	322.3	49.7	553.6	757.9
S/DEPTH= .3	40.682	23.643	4.433	1.612	3.233	3.252	3.241	3.271	3.253
	31.4	16.3	491.6	*****	654.9	322.1	49.5	553.7	758.1
S/DEPTH= .2	40.345	23.655	4.547	1.577	3.228	3.253	3.243	3.270	3.251
	30.8	16.2	476.6	*****	656.6	322.0	49.4	553.7	758.2
S/DEPTH= .1	40.145	23.662	4.616	1.557	3.225	3.253	3.243	3.269	3.250
	30.5	16.1	468.0	*****	656.0	321.9	49.4	553.7	758.3
S/DEPTH= .0	40.078	23.664	4.638	1.550	3.224	3.253	3.244	3.269	3.250
	30.4	16.1	465.1	*****	656.1	321.9	49.3	553.7	758.3

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TABLE II-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	160.0
ETA/HEIGHT=	.938	.413	.049	.039	.062	.061	.061	.062	.062
	46.7%	19.3%	-859.2%	*****	621.2%	310.5%	-41.7%	518.6%	-710.5%
SURFACE	.000	18.751	5.852	1.549	.134	-.101	.066	.062	.000
	*****	96.5%	78.3%	-18.5%	*****	*****	*****	*****	*****
S/DEPTH=1.3	.000								

S/DEPTH=1.2	.000								

S/DEPTH=1.1	.000								

S/DEPTH=1.0	.000								

S/DEPTH=.9	.000	17.510	5.764	1.425	.120	-.087	.057	.053	.000
	*****	96.6%	81.4%	.9%	*****	*****	*****	*****	*****
S/DEPTH=.8	.000	13.729	5.280	.971	.103	-.071	.046	.043	.000
	*****	96.4%	81.7%	1.276	*****	*****	*****	*****	*****
S/DEPTH=.7	.000	11.985	4.764	1.7%	.087	-.057	.037	.035	.000
	*****	96.4%	82.0%	1.125	*****	*****	*****	*****	*****
S/DEPTH=.6	.000	10.320	4.220	2.4%	.073	-.045	.029	.028	.000
	*****	96.3%	82.2%	3.1%	*****	*****	*****	*****	*****
S/DEPTH=.5	.000	8.724	3.655	.971	.059	-.035	.023	.022	.000
	*****	96.3%	82.4%	.814	*****	*****	*****	*****	*****
S/DEPTH=.4	.000	7.185	3.071	*****	.047	-.027	.017	.017	.000
	*****	96.2%	82.5%	.654	*****	*****	*****	*****	*****
S/DEPTH=.3	.000	5.693	2.473	*****	.035	-.019	.013	.012	.000
	*****	96.2%	82.7%	.493	*****	*****	*****	*****	*****
S/DEPTH=.2	.000	4.238	1.864	*****	.023	-.012	.008	.008	.000
	*****	96.1%	82.8%	.329	*****	*****	*****	*****	*****
S/DEPTH=.1	.000	2.810	1.247	*****	.011	-.006	.004	.004	.000
	*****	96.1%	82.8%	.165	*****	*****	*****	*****	*****
S/DEPTH=.0	.000	1.401	.625	*****	.000	.000	.000	.000	.000
	*****	96.1%	82.8%	.000	*****	*****	*****	*****	*****
S/DEPTH=.0	.000	.000	.000	*****	.000	.000	.000	.000	.000
	*****	.000	.000	.000	*****	*****	*****	*****	*****

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TABLE 11-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.938	.413	.049	.039	.062	.061	.061	.062	.062
	46.7%	19.3%	859.2%	*****	621.2%	310.5%	-41.7%	-518.6%	-710.5%
SURFACE	.000	1130.109	270.736	93.929	12.727	13.429	8.834	8.133	.000
	*****	97.6%	82.2%	21.6%	*****	*****	*****	*****	*****
S/DEPTH=1.3	.000								

S/DEPTH=1.2	.000								

S/DEPTH=1.1	.000	1090.256							
	*****	97.7%							
S/DEPTH=1.0	.000	1030.707	283.710						
	*****	97.6%	82.6%						
S/DEPTH=.9	.000	978.161	307.214	95.105	11.719	-11.690	7.674	7.093	.000
	*****	97.5%	83.9%	22.9%	*****	*****	*****	*****	*****
S/DEPTH=.8	.000	932.216	326.850	96.801	10.618	-9.776	6.404	5.946	.000
	*****	97.3%	84.9%	24.5%	*****	*****	*****	*****	*****
S/DEPTH=.7	.000	892.513	343.116	98.660	9.8737	-8.8224	5.378	5.016	.000
	*****	97.2%	85.7%	25.6%	*****	*****	*****	*****	*****
S/DEPTH=.6	.000	858.735	356.431	100.132	9.039	-6.977	4.556	4.269	.000
	*****	97.1%	86.2%	27.3%	*****	*****	*****	*****	*****
S/DEPTH=.5	.000	830.612	367.144	102.298	8.494	-5.991	3.907	3.677	.000
	*****	97.0%	86.8%	28.6%	*****	*****	*****	*****	*****
S/DEPTH=.4	.000	807.912	375.540	103.862	8.078	-5.228	3.407	3.220	.000
	*****	96.9%	86.9%	29.7%	*****	*****	*****	*****	*****
S/DEPTH=.3	.000	790.449	381.844	105.150	7.774	-4.662	3.037	2.881	.000
	*****	96.9%	87.2%	30.6%	*****	*****	*****	*****	*****
S/DEPTH=.2	.000	778.078	386.227	106.108	7.566	-4.272	2.782	2.646	.000
	*****	96.8%	87.3%	31.5%	*****	*****	*****	*****	*****
S/DEPTH=.1	.000	770.697	388.810	106.698	7.445	-4.044	2.632	2.509	.000
	*****	96.8%	87.4%	31.7%	*****	*****	*****	*****	*****
S/DEPTH=.0	.000	768.243	389.663	106.697	7.406	-3.968	2.583	2.464	.000
	*****	96.8%	87.4%	31.8%	*****	*****	*****	*****	*****

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TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.938	.413	.049	.039	-.062	-.061	.061	-.062	-.062
	46.7%	19.3%	-859.2%	*****	621.2%	310.5%	41.7%	518.6%	710.5%
SURFACE	*****	283.545	316.304	85.695	19.034	-2.786	-6.276	3.784	6.539
S/DEPTH#1.3	98.2%	106.5%	105.5%	116.0%	*****	*****	*****	*****	*****
S/DEPTH#1.2	100.0%								
S/DEPTH#1.1	805.567	249.698							
S/DEPTH#1.0	717.653	201.851	310.076						
S/DEPTH# .9	633.768	182.258	277.573	78.666	16.502	-2.340	-5.396	3.240	5.561
S/DEPTH# .8	553.620	159.525	245.354	115.1%	13.622	-1.852	-4.403	2.629	4.473
S/DEPTH# .7	476.860	102.462	213.499	115.0%	11.161	-1.456	-3.565	2.117	3.571
S/DEPTH# .6	403.100	80.048	182.042	115.0%	9.035	-1.133	-2.851	1.685	2.818
S/DEPTH# .5	331.934	61.400	150.982	114.9%	7.172	-.867	-2.237	1.517	2.185
S/DEPTH# .4	282.937	45.740	120.291	104.9%	5.514	-.646	-1.702	.998	1.645
S/DEPTH# .3	195.679	32.376	89.919	28.999	4.009	-.457	-1.227	.718	1.176
S/DEPTH# .2	129.727	20.681	59.800	18.044	2.614	-.292	-.795	.464	.757
S/DEPTH# .1	64.646	10.072	29.855	9.036	1.290	-.142	-.390	.228	.370
S/DEPTH# .0	97.5%	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 10B

TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)											
THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0		
ETA/HEIGHT=	.938	.413	.049	.039	.062	.061	.061	.062	.062		
	46.7%	19.3%	859.2%	*****	621.2%	310.5%	41.7%	518.6%	710.5%		
SURFACE	2744.612	639.354	15.553	3.122	10.372	10.302	10.200	10.470	10.377		
	65.9%	41.8%	*****	*****	*****	*****	*****	*****	*****		
S/DEPTH=1.3	2554.316										
	100.0%										
S/DEPTH=1.2	2284.330										
	59.0%										
S/DEPTH=1.1	2035.023										
	57.6%										
S/DEPTH=1.0	1803.278										
	56.6%										
S/DEPTH= .9	1586.427										
	55.6%										
S/DEPTH= .8	1382.162										
	54.6%										
S/DEPTH= .7	1188.472										
	54.0%										
S/DEPTH= .6	1003.585										
	53.3%										
S/DEPTH= .5	825.924										
	52.6%										
S/DEPTH= .4	654.069										
	52.3%										
S/DEPTH= .3	486.724										
	51.9%										
S/DEPTH= .2	322.681										
	51.7%										
S/DEPTH= .1	160.804										
	51.5%										
S/DEPTH= 0	0.00										

CASE 1=B

TABLE V7-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.938	.413	.049	.039	.062	.061	.061	.062	.062
	46.7%	19.3%	859.2%	*****	621.2%	310.5%	41.7%	518.6%	710.5%
SURFACE	.000	1026.951	362.568	100.129	8.749	86.636	4.339	4.060	.000
S/DEPTH=1.5	*****	97.1%	83.9%	14.6%	*****	*****	*****	*****	*****
S/DEPTH=1.2	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.1	*****	959.406	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.0	*****	97.2%	357.200	92.124	7.821	5.683	3.711	3.484	.000
S/DEPTH=.9	*****	97.1%	327.610	28.6%	*****	*****	*****	*****	*****
S/DEPTH=.8	*****	853.418	295.886	82.531	6.706	-4.613	3.010	2.834	.000
S/DEPTH=.7	*****	97.0%	262.361	29.2%	*****	*****	*****	*****	*****
S/DEPTH=.6	*****	566.380	262.361	72.758	5.690	-3.715	2.422	2.287	.000
S/DEPTH=.5	*****	97.0%	227.361	25.7%	*****	*****	*****	*****	*****
S/DEPTH=.4	*****	478.866	227.361	62.798	4.753	-2.958	1.927	1.824	.000
S/DEPTH=.3	*****	394.445	191.162	52.656	3.877	-2.311	1.506	1.428	.000
S/DEPTH=.2	*****	96.9%	154.009	30.7%	*****	*****	*****	*****	*****
S/DEPTH=.1	*****	32.563	42.346	30.7%	3.050	-1.752	1.141	1.085	.000
S/DEPTH=.0	*****	96.8%	116.123	31.892	2.258	-1.259	.820	.780	.000
S/DEPTH=.0	*****	96.8%	77.704	21.327	1.492	-.814	.530	.505	.000
S/DEPTH=.0	*****	96.8%	38.938	10.683	.742	-.399	.260	.248	.000
S/DEPTH=.0	*****	96.8%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	*****	96.8%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	*****	96.8%	*****	*****	*****	*****	*****	*****	*****

CASE 1=B

TABLE VII=DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA °	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.930	.413	.049	.039	.062	.061	.062	.062	.062
	46.7%	19.3%	459.2%	*****	621.2%	310.5%	41.7%	518.6%	710.5%
SURFACE	2074.248	367.450	6.394	-1.750	-5.119	-5.020	4.960	-5.119	-5.082
	72.9%	47.5%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.3	1820.554								
	100.0%								
S/DEPTH=1.2	1482.685								
	62.1%								
S/DEPTH=1.1	1196.023								
	60.3%								
S/DEPTH=1.0	952.557								
	58.8%								
S/DEPTH=.9	746.434								
	57.5%								
S/DEPTH=.8	572.713								
	56.3%								
S/DEPTH=.7	427.365								
	55.2%								
S/DEPTH=.6	307.122								
	54.2%								
S/DEPTH=.5	209.354								
	53.4%								
S/DEPTH=.4	131.977								
	52.7%								
S/DEPTH=.3	73.573								
	51.9%								
S/DEPTH=.2	32.340								
	51.1%								
S/DEPTH=.1	8.045								
	50.0%								
S/DEPTH=.0	*****								

TABLE VII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

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TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA ETA/HEIGHT	0 .938 46.7%	10.0 .413 19.3%	20.0 .049 859.2%	30.0 .039 *****	50.0 .062 621.2%	75.0 100.0 310.5%	100.0 130.0 518.6%	180.0 180.0 710.5%
SURFACE	1.871	.835	.097	-.080	-.127	-.123	-.122	-.125
S/DEPTH=1.3	49.1%	12.6%	-835.9%	*****	611.9%	343.8%	66.4%	-738.3%
S/DEPTH=1.2	100.0%							
S/DEPTH=1.1	46.1%							
S/DEPTH=1.0	1.865	.846						
S/DEPTH=.9	42.9%	1.860	.100					
S/DEPTH=.8	41.4%	.872	.119	-.076	-.126	-.123	-.122	-.125
S/DEPTH=.7	40.1%	.888	.150	*****	614.4%	343.4%	55.9%	-740.2%
S/DEPTH=.6	38.9%	.894	.163	-.071	-.125	343.1%	51.22	-712.4
S/DEPTH=.5	37.8%	.898	.173	*****	618.0%	342.9%	53.3%	-742.3%
S/DEPTH=.4	36.9%	.902	.182	-.067	-.125	342.7%	48.8%	-743.2%
S/DEPTH=.3	36.1%	.904	.189	-.063	620.9%	342.5%	44.4%	-743.7%
S/DEPTH=.2	35.5%	.906	.194	*****	623.3%	342.3%	41.23	-744.2%
S/DEPTH=.1	34.8%	.907	.196	-.054	625.2%	342.1%	41.23	-744.2%
S/DEPTH=.0	34.7%	.907	.197	-.053	626.7%	342.0%	38.6%	-744.4%
				*****	627.9%	342.0%	36.6%	-744.6%
				*****	628.7%	342.0%	35.2%	-744.8%
				*****	629.1%	342.0%	34.2%	-744.8%
				*****	629.3%	342.0%	33.3%	-744.8%

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TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.002	.003	.004	.005	.002	.001	.004	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.024	.022	.018	.012	.004	.020	.022	.004	.023
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.003	.005	.001	.001	.002	.000	.000	.001	.001

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TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.128 (12.7%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.145 (-245.7%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.163 (-208.9%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.308 (-226.2%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.303 (-229.3%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.985 (-1.0%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.223 (-209.6%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.428 (-248.7%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.125 (-295.4%)

CASE 1-B

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10)	DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.003113	STREAM FUNCTION	.000000
(11)	DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.016640	STREAM FUNCTION	.001684
(12)	DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.004955	STREAM FUNCTION	.000000
(13)	DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.023651	STREAM FUNCTION	.004954
(14)	DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.196021	STREAM FUNCTION	.331913
(15)	DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.002352	STREAM FUNCTION	.131477

CASE 1=C

19TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L. = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

HAVE CHARACTERISTICS

H/LO = .001169 DPT/LO = .002000

H/DPT = .58426

L/LO = .137070 PSI/(G*H*T) = -.000286

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) =	-.170855=01	X(2)/(H*T*G) =	-.818334=02
X(3)/(H*T*G) =	-.505625=02	X(4)/(H*T*G) =	-.343514=02
X(5)/(H*T*G) =	-.241829=02	X(6)/(H*T*G) =	-.174028=02
X(7)/(H*T*G) =	-.125519=02	X(8)/(H*T*G) =	-.911680=03
X(9)/(H*T*G) =	-.657157=03	X(10)/(H*T*G) =	-.475132=03
X(11)/(H*T*G) =	-.334609=03	X(12)/(H*T*G) =	-.243329=03
X(13)/(H*T*G) =	-.171508=03	X(14)/(H*T*G) =	-.121568=03
X(15)/(H*T*G) =	-.843649=04	X(16)/(H*T*G) =	-.591503=04
X(17)/(H*T*G) =	-.403566=04	X(18)/(H*T*G) =	-.280536=04
X(19)/(H*T*G) =	-.187999=04		

CASE 10C

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA =	0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.951	.287	.002	.042	.050	.048	.049	.049
	47.4%	71.8%	*****	*****	739.9%	307.9%	-61.4%	-926.2%
SURFACE	56.519	16.026	.174	.2305	-2.745	-2.457	-2.405	-2.558
S/DEPTH=1.5	50.1%	73.2%	*****	*****	*****	*****	*****	*****
	54.801	16.756	.170	.2344	-2.715	-2.463	-2.416	-2.547
S/DEPTH=1.4	100.0%	65.0%	*****	*****	*****	*****	*****	*****
	51.999	17.095	.168	.2372	-2.678	-2.470	-2.429	-2.533
S/DEPTH=1.3	100.0%	61.5%	*****	*****	*****	*****	*****	*****
	49.510	17.574	.174	.2409	-2.649	-2.476	-2.439	-2.522
S/DEPTH=1.2	43.1%	58.87%	.746	.2436	-2.625	-2.481	-2.448	-2.513
	47.304	56.5%	.983	.2466	-2.606	-2.484	-2.455	-2.506
S/DEPTH=1.1	45.357	54.8%	*****	*****	*****	*****	*****	*****
	38.0%	57.9%	1.184	.2491	-2.580	-2.487	-2.460	-2.501
S/DEPTH=1.0	43.644	53.4%	*****	*****	*****	*****	*****	*****
	35.7%	52.4%	1.350	-1.974	-2.553	-2.467	-2.439	-2.494
S/DEPTH= .9	42.147	51.6%	1.479	-1.946	-2.524	-2.464	-2.439	-2.493
S/DEPTH= .8	40.848	50.7%	*****	*****	*****	*****	*****	*****
	33.5%	50.7%	1.626	-1.914	-2.521	-2.469	-2.449	-2.492
S/DEPTH= .7	39.733	50.7%	1.645	-1.910	-2.567	-2.481	-2.469	-2.492
S/DEPTH= .6	38.790	50.6%	*****	*****	*****	*****	*****	*****
	27.9%	50.6%	*****	*****	*****	*****	*****	*****
S/DEPTH= .5	38.008	50.6%	*****	*****	*****	*****	*****	*****
	26.3%	50.6%	*****	*****	*****	*****	*****	*****
S/DEPTH= .4	37.379	50.6%	*****	*****	*****	*****	*****	*****
	25.3%	50.6%	*****	*****	*****	*****	*****	*****
S/DEPTH= .3	36.897	50.6%	*****	*****	*****	*****	*****	*****
	24.4%	50.6%	*****	*****	*****	*****	*****	*****
S/DEPTH= .2	36.556	50.6%	*****	*****	*****	*****	*****	*****
	23.7%	50.6%	*****	*****	*****	*****	*****	*****
S/DEPTH= .1	36.353	50.6%	*****	*****	*****	*****	*****	*****
	23.3%	50.6%	*****	*****	*****	*****	*****	*****
S/DEPTH= .0	36.286	50.6%	*****	*****	*****	*****	*****	*****
	23.1%	50.6%	*****	*****	*****	*****	*****	*****

...DEFINED IN EQUATION (22)

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CASE 10C

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.951	.287	.002	.042	.050	.048	.049	.049
	47.4%	-71.8%	*****	*****	739.9%	367.9%	-81.4%	-681.4%
								-926.2%
SURFACE	.000	1131.940	94.953	78.320	17.877	-25.352	17.017	15.317
S/DEPTH=1.5	*****	98.1%	53.5%	15.2%	*****	*****	*****	*****
S/DEPTH=1.5	.000							.001
S/DEPTH=1.4	*****							*****
S/DEPTH=1.4	.000							.001
S/DEPTH=1.3	*****							*****
S/DEPTH=1.3	.000							.001
S/DEPTH=1.2	*****							*****
S/DEPTH=1.2	.000							.001
S/DEPTH=1.1	*****							*****
S/DEPTH=1.1	.000							.001
S/DEPTH=1.0	*****	1090.026	95.371	74.629	16.185	-22.494	15.050	13.609
S/DEPTH=1.0	.000	98.0%	54.0%	11.6%	*****	*****	*****	*****
S/DEPTH=.9	*****	983.185	128.770	70.802	14.131	-19.118	12.743	11.579
S/DEPTH=.9	.000	97.8%	66.0%	7.0%	*****	*****	*****	*****
S/DEPTH=.8	*****	939.002	157.102	67.961	12.432	-16.354	10.860	9.917
S/DEPTH=.8	.000	97.7%	72.1%	3.2%	*****	*****	*****	*****
S/DEPTH=.7	*****	900.641	180.919	65.090	11.042	-14.114	9.337	8.570
S/DEPTH=.7	.000	97.6%	75.8%	3.2%	*****	*****	*****	*****
S/DEPTH=.6	*****	867.874	200.687	64.115	9.924	-12.528	8.126	7.496
S/DEPTH=.6	.000	97.5%	78.2%	-1.9%	*****	*****	*****	*****
S/DEPTH=.5	*****	840.500	216.794	63.990	9.048	-10.937	7.186	6.639
S/DEPTH=.5	.000	97.4%	79.9%	-3.2%	*****	*****	*****	*****
S/DEPTH=.4	*****	818.544	229.558	62.705	8.391	-9.899	6.484	6.035
S/DEPTH=.4	.000	97.3%	81.0%	4.4%	*****	*****	*****	*****
S/DEPTH=.3	*****	801.264	239.231	62.375	7.934	-9.180	6.000	5.603
S/DEPTH=.3	.000	97.3%	81.8%	-5.3%	*****	*****	*****	*****
S/DEPTH=.2	*****	789.145	246.006	62.039	7.665	-8.757	5.715	5.348
S/DEPTH=.2	.000	97.2%	82.3%	*****	*****	*****	*****	*****
S/DEPTH=.1	*****	781.906	250.018	61.965	7.576	-8.618	5.621	5.265
S/DEPTH=.1	.000	97.2%	82.6%	*****	*****	*****	*****	*****
S/DEPTH=.0	*****	779.499	251.346	62.7%	*****	*****	*****	*****
S/DEPTH=.0	.000	97.2%	82.7%	*****	*****	*****	*****	*****

TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

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CASE 1=C

TABLE W/DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.951	.267	.002	.042	.050	.048	.048	.049	.049
	47.4%	-71.8%	*****	*****	739.9%	367.9%	-81.4%	-681.4%	-926.2%
SURFACE	2860.992	361.832	1.366	-4.071	-6.669	-5.982	-5.833	-6.234	-6.131
S/DEPTH=1.5	64.5%	-171.0%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.4	100.0%								
S/DEPTH=1.3	2402.768								
S/DEPTH=1.2	100.0%								
S/DEPTH=1.1	2145.372								
S/DEPTH=1.0	52.7%								
S/DEPTH=0.9	1911.227								
S/DEPTH=0.8	50.8%								
S/DEPTH=0.7	1696.733								
S/DEPTH=0.6	49.2%								
S/DEPTH=0.5	142.9%								
S/DEPTH=0.4	316.721								
S/DEPTH=0.3	47.8%								
S/DEPTH=0.2	1314.972								
S/DEPTH=0.1	46.5%								
S/DEPTH=0.0	142.887								
S/DEPTH=0.9	45.3%								
S/DEPTH=0.8	134.6%								
S/DEPTH=0.7	227.735								
S/DEPTH=0.6	44.2%								
S/DEPTH=0.5	826.621								
S/DEPTH=0.4	43.3%								
S/DEPTH=0.3	679.270								
S/DEPTH=0.2	42.6%								
S/DEPTH=0.1	537.279								
S/DEPTH=0.0	41.9%								
S/DEPTH=0.9	399.441								
S/DEPTH=0.8	41.4%								
S/DEPTH=0.7	264.641								
S/DEPTH=0.6	41.1%								
S/DEPTH=0.5	131.628								
S/DEPTH=0.4	40.0%								
S/DEPTH=0.3	399.441								
S/DEPTH=0.2	41.4%								
S/DEPTH=0.1	131.628								
S/DEPTH=0.0	40.0%								
S/DEPTH=0.9	361.832								
S/DEPTH=0.8	-171.0%								
S/DEPTH=0.7	1.366								
S/DEPTH=0.6	-4.071								
S/DEPTH=0.5	-6.669								
S/DEPTH=0.4	-5.982								
S/DEPTH=0.3	-5.833								
S/DEPTH=0.2	-6.234								
S/DEPTH=0.1	-6.131								
S/DEPTH=0.0	*****								
S/DEPTH=0.9	64.5%								
S/DEPTH=0.8	-171.0%								
S/DEPTH=0.7	1.366								
S/DEPTH=0.6	-4.071								
S/DEPTH=0.5	-6.669								
S/DEPTH=0.4	-5.982								
S/DEPTH=0.3	-5.833								
S/DEPTH=0.2	-6.234								
S/DEPTH=0.1	-6.131								
S/DEPTH=0.0	*****								
S/DEPTH=0.9	2860.992								
S/DEPTH=0.8	361.832								
S/DEPTH=0.7	1.366								
S/DEPTH=0.6	-4.071								
S/DEPTH=0.5	-6.669								
S/DEPTH=0.4	-5.982								
S/DEPTH=0.3	-5.833								
S/DEPTH=0.2	-6.234								
S/DEPTH=0.1	-6.131								
S/DEPTH=0.0	*****								
S/DEPTH=0.9	64.5%								
S/DEPTH=0.8	-171.0%								
S/DEPTH=0.7	1.366								
S/DEPTH=0.6	-4.071								
S/DEPTH=0.5	-6.669								
S/DEPTH=0.4	-5.982								
S/DEPTH=0.3	-5.833								
S/DEPTH=0.2	-6.234								
S/DEPTH=0.1	-6.131								
S/DEPTH=0.0	*****								
S/DEPTH=0.9	2860.992								
S/DEPTH=0.8	361.832								
S/DEPTH=0.7	1.366								
S/DEPTH=0.6	-4.071								
S/DEPTH=0.5	-6.669								
S/DEPTH=0.4	-5.982								
S/DEPTH=0.3	-5.833								
S/DEPTH=0.2	-6.234								
S/DEPTH=0.1	-6.131								
S/DEPTH=0.0	*****								
S/DEPTH=0.9	64.5%								
S/DEPTH=0.8	-171.0%								
S/DEPTH=0.7	1.366								
S/DEPTH=0.6	-4.071								
S/DEPTH=0.5	-6.669								
S/DEPTH=0.4	-5.982								
S/DEPTH=0.3	-5.833								
S/DEPTH=0.2	-6.234								
S/DEPTH=0.1	-6.131								
S/DEPTH=0.0	*****								
S/DEPTH=0.9	2860.992								
S/DEPTH=0.8	361.832								
S/DEPTH=0.7	1.366								
S/DEPTH=0.6	-4.071								
S/DEPTH=0.5	-6.669								
S/DEPTH=0.4	-5.982								
S/DEPTH=0.3	-5.833								
S/DEPTH=0.2	-6.234								
S/DEPTH=0.1	-6.131								
S/DEPTH=0.0	*****								
S/DEPTH=0.9	64.5%								
S/DEPTH=0.8	-171.0%								
S/DEPTH=0.7	1.366								
S/DEPTH=0.6	-4.071								
S/DEPTH=0.5	-6.669								
S/DEPTH=0.4	-5.982								
S/DEPTH=0.3	-5.833								
S/DEPTH=0.2	-6.234								
S/DEPTH=0.1	-6.131								
S/DEPTH=0.0	*****								
S/DEPTH=0.9	2860.992								
S/DEPTH=0.8	361.832								
S/DEPTH=0.7	1.366								
S/DEPTH=0.6	-4.071								
S/DEPTH=0.5	-6.669								
S/DEPTH=0.4	-5.982								
S/DEPTH=0.3	-5.833								
S/DEPTH=0.2	-6.234								
S/DEPTH=0.1	-6.131								
S/DEPTH=0.0	*****								
S/DEPTH=0.9	64.5%								
S/DEPTH=0.8	-171.0%								
S/DEPTH=0.7	1.366								
S/DEPTH=0.6	-4.071								
S/DEPTH=0.5	-6.669								
S/DEPTH=0.4	-5.982								
S/DEPTH=0.3	-5.833								
S/DEPTH=0.2	-6.234								
S/DEPTH=0.1	-6.131								
S/DEPTH=0.0	*****								
S/DEPTH=0.9	2860.992								
S/DEPTH=0.8	361.832								
S/DEPTH=0.7	1.366								
S/DEPTH=0.6	-4.071								
S/DEPTH=0.5	-6.669								
S/DEPTH=0.4	-5.982								
S/DEPTH=0.3	-5.833								
S/DEPTH=0.2	-6.234								
S/DEPTH=0.1	-6.131								
S/DEPTH=0.0	*****								
S/DEPTH=0.9	64.5%								
S/DEPTH=0.8	-171.0%								
S/DEPTH=0.7	1.366								
S/DEPTH=0.6	-4.071								
S/DEPTH=0.5	-6.669								
S/DEPTH=0.4	-5.982								
S/DEPTH=0.3	-5.833								
S/DEPTH=0.2	-6.234								
S/DEPTH=0.1	-6.131								
S/DEPTH=0.0	*****								
S/DEPTH=0.9	2860.992								
S/DEPTH=0.8	361.832								
S/DEPTH=0.7	1.366								
S/DEPTH=0.6	-4.071								
S/DEPTH=0.5	-6.669								
S/DEPTH=0.4	-5.982								
S/DEPTH=0.3	-5.833								
S/DEPTH=0.2	-6.234								
S/DEPTH=0.1	-6.131								
S/DEPTH=0.0	*****								
S/DEPTH=0.9	64.5%								
S/DEPTH=0.8	-171.0%								
S/DEPTH=0.7	1.366								
S/DEPTH=0.6	-4.071								
S/DEPTH=0.5	-6.669								
S/DEPTH=0.4	-5.982								
S/DEPTH=0.3	-5.833								
S/DEPTH=0.2	-6.234								
S/DEPTH=0.1	-6.131								
S/DEPTH=0.0	*****								
S/DEPTH=0.9	2860.992								
S/DEPTH=0.8	361.832								
S/DEPTH=0.7	1.366								
S/DEPTH=0.6	-4.071								
S/DEPTH=0.5	-6.669								
S/DEPTH=0.4	-5.982								
S/DEPTH=0.3	-5.833								
S/DEPTH=0.2	-6.234								
S/DEPTH=0.1	-6.131								
S/DEPTH=0.0	*****								
S/DEPTH=0.9	64.5%								
S/DEPTH=0.8	-171.0%								
S/DEPTH=0.7	1.366								
S/DEPTH=0.6	-4.071								
S/DEPTH=0.5	-6.669								
S/DEPTH=0.4	-5.982								
S/DEPTH=0.3	-5.833								
S/DEPTH=0.2	-6.234								
S/DEPTH=0.1	-6.131								
S/DEPTH=0.0	*****								
S/DEPTH=0.9	2860.992								
S/DEPTH=0.8	361.832								
S/DEPTH=0.7	1.366								
S/DEPTH=0.6	-4.071								
S/DEPTH=0.5	-6.669								
S/DEPTH									

CASE 10-C

TABLE VI. DIMENSIONLESS INERTIA FORCE COMPONENT FIELD... DEFINED IN EQUATION (26)

ETA	0.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	0.951	0.87	0.02	0.042	0.050	0.048	0.048	0.049	0.049
HEIGHT	47.4%	71.6%	*****	*****	739.9%	367.9%	51.4%	651.2%	926.2%

[illegible]

TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

48

SURFACE	.000	648.626	88.792	32.595	5.838	=7.722	5.136	4.676	.000
S/DEPTH=1.5	*****	97.2%	59.9%	*****	*****	*****	*****	*****	*****
S/DEPTH=1.4	*****								
S/DEPTH=1.3	*****								
S/DEPTH=1.2	*****								
S/DEPTH=1.1	*****	563.611							
S/DEPTH=1.0	*****	452.138	88.682	27.193	4.713	-6.116	4.056	3.711	.000
S/DEPTH=.9	*****	356.356	75.3%	*****	*****	*****	*****	*****	*****
S/DEPTH=.8	*****	274.668	65.861	21.017	3.425	-4.349	2.876	2.642	.000
S/DEPTH=.7	*****	205.685	53.178	15.816	2.430	*****	1.932	1.836	.000
S/DEPTH=.6	*****	148.211	40.771	11.468	1.667	-2.031	1.336	1.236	.000
S/DEPTH=.5	*****	101.282	29.288	7.886	1.091	-1.304	.896	.795	.000
S/DEPTH=.4	*****	63.909	19.244	5.011	.684	-1.781	.511	.476	.000
S/DEPTH=.3	*****	35.568	11.039	2.804	.359	*****	.272	.254	.000
S/DEPTH=.2	*****	15.686	4.974	1.242	.155	*****	.116	.109	.000
S/DEPTH=.1	*****	3.904	1.253	.310	.038	*****	.028	.027	.000
S/DEPTH=.0	*****	.000	.000	.000	.000	*****	.000	.000	.000

CASE 1=C

TABLE 1X=DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

DEPTH	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.951	.267	.002	.042	.050	.048	.049	.049
	47.4%	-71.8%	*****	*****	739.9%	367.9%	-681.4%	-926.2%
SURFACE	1.883	.602	.002	-.090	-.110	.097	-.094	-.101
S/DEPTH=1.5	50.7%	-52.6%	*****	*****	697.6%	430.6%	-13.5%	-957.5%
S/DEPTH=1.4	100.0%							
S/DEPTH=1.3	100.0%							
S/DEPTH=1.2	1.659							
S/DEPTH=1.1	44.1%							
S/DEPTH=1.0	42.4%							
S/DEPTH=.9	40.7%							
S/DEPTH=.8	39.1%							
S/DEPTH=.7	37.7%							
S/DEPTH=.6	36.4%							
S/DEPTH=.5	35.2%							
S/DEPTH=.4	34.2%							
S/DEPTH=.3	33.5%							
S/DEPTH=.2	32.6%							
S/DEPTH=.1	31.8%							
S/DEPTH=.0	31.7%							
	1.883	.602	.002	-.090	-.110	.097	-.094	-.101
	50.7%	-52.6%	*****	*****	697.6%	430.6%	-13.5%	-957.5%
	100.0%							
	100.0%							
	1.659							
	44.1%							
	42.4%							
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	32.1%							
	31.8%							
	31.7%							
	1.883	.602	.002	-.090	-.110	.097	-.094	-.101
	50.7%	-52.6%	*****	*****	697.6%	430.6%	-13.5%	-957.5%
	100.0%							
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	1.883	.602	.002	-.090	-.110	.097	-.094	-.101
	50.7%	-52.6%	*****	*****	697.6%	430.6%	-13.5%	-957.5%
	100.0%							
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	32.1%							
	31.8%							
	31.7%							
	1.883	.602	.002	-.090	-.110	.097	-.094	-.101
	50.7%	-52.6%	*****	*****	697.6%	430.6%	-13.5%	-957.5%
	100.0%							
	100.0%							
	1.659							
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	42.4%							
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	32.1%							
	31.8%							
	31.7%							
	1.883	.602	.002	-.090	-.110	.097	-.094	-.101
	50.7%	-52.6%	*****	*****	697.6%	430.6%	-13.5%	-957.5%
	100.0%							
	100.0%							
	1.659							
	44.1%							
	42.4%							
	40.7%							
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	37.7%							
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	32.6%							
	32.1%							
	31.8%							
	31.7%							
	1.883	.602	.002	-.090	-.110	.097	-.094	-.101
	50.7%	-52.6%	*****	*****	697.6%	430.6%	-13.5%	-957.5%
	100.0%							
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	31.8%							
	31.7%							
	1.883	.602	.002	-.090	-.110	.097	-.094	-.101
	50.7%	-52.6%	*****	*****	697.6%	430.6%	-13.5%	-957.5%
	100.0%							
	100.0%							
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	31.8%							
	31.7%							
	1.883	.602	.002	-.090	-.110	.097	-.094	-.101
	50.7%	-52.6%	*****	*****	697.6%	430.6%	-13.5%	-957.5%
	100.0%							
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	31.8%							
	31.7%							
	1.883	.602	.002	-.090	-.110	.097	-.094	-.101
	50.7%	-52.6%	*****	*****	697.6%	430.6%	-13.5%	-957.5%
	100.0%							
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	31.8%							
	31.7%							
	1.883	.602	.002	-.090	-.110	.097	-.094	-.101
	50.7%	-52.6%	*****	*****	697.6%	430.6%	-13.5%	-957.5%
	100.0%							
	100.0%							
	1.659							
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	31.8%							
	31.7%							
	1.883	.602	.002	-.090	-.110	.097	-.094	-.101
	50.7%	-52.6%	*****	*****	697.6%	430.6%	-13.5%	-957.5%
	100.0%							
	100.0%							
	1.659							
	44.1%							
	42.4%							
	40.7%							
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	36.4%							
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	33.5%							
	32.6%							
	32.1%							
	31.8%							
	31.7%							
	1.883	.602	.002	-.090	-.110	.097	-.094	-.101
	50.7%	-52.6%	*****	*****	697.6%	430.6%	-13.5%	-957.5%
	100.0%							
	100.0%							
	1.659							
	44.1%							
	42.4%							
	40.7%							
	39.1%							
	37.7%							
	36.4%							
	35.2%							
	34.2%							
	33.5%							
	32.6%							
	32.1%							
	31.8%							
	31.7%							
	1.883	.602	.002	-.090	-.110	.097	-.094	-.101

CASE 1=C

TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.005	.009	.011	.012	.005	.003	.008	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.036	.033	.027	.018	.006	.030	.033	.066	.035
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.010	.014	.001	.003	.005	.000	.001	.002	.002

CASE 1=C

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.137 (=.18.4%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.113 (=.341.6%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.136 (=.270.7%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.249 (=.302.9%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.247 (=.303.4%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.993 (=.99.1%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.268 (=.273.6%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.344 (=.334.4%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.096 (=.413.8%)

CASE 1=C

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.007273	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.024969	STREAM FUNCTION	.004690
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.012231	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.035580	STREAM FUNCTION	.015717
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.294402	STREAM FUNCTION	.481962
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.003352	STREAM FUNCTION	.209473

CASE 1=0

19TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/g \cdot 28518) \cdot T^{**2}$
H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
DPT = WATER DEPTH L = WAVE LENGTH
PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .001564 DPT/LO = .002000
H/DPT = .782113
L/LO = .146465 PSI/(G*H*T) = *.000312

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) =	*.151873=01	X(2)/(H*T*G) =	*.734411=02
X(3)/(H*T*G) =	*.460053=02	X(4)/(H*T*G) =	*.318689=02
X(5)/(H*T*G) =	*.29251=02	X(6)/(H*T*G) =	*.169482=02
X(7)/(H*T*G) =	*.125585=02	X(8)/(H*T*G) =	*.940877=03
X(9)/(H*T*G) =	*.598760=03	X(10)/(H*T*G) =	*.522365=03
X(11)/(H*T*G) =	*.384721=03	X(12)/(H*T*G) =	*.285146=03
X(13)/(H*T*G) =	*.207334=03	X(14)/(H*T*G) =	*.152059=03
X(15)/(H*T*G) =	*.108782=03	X(16)/(H*T*G) =	*.788972=04
X(17)/(H*T*G) =	*.553676=04	X(18)/(H*T*G) =	*.397431=04
X(19)/(H*T*G) =	*.273118=04		

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

SURFACE	57.938	12.194	-1.931	-2.136	-2.393	-2.019	-1.955	-2.149	-2.144
S/DEPTH=1.7	51.53	-128.10	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.6	56.202								
S/DEPTH=1.5	100.0								
S/DEPTH=1.4	53.013								
S/DEPTH=1.3	100.0								
S/DEPTH=1.2	50.166								
S/DEPTH=1.1	100.0								
S/DEPTH=1.0	47.628								
S/DEPTH=.9	40.72								
S/DEPTH=.8	45.368								
S/DEPTH=.7	37.9								
S/DEPTH=.6	43.362								
S/DEPTH=.5	35.13								
S/DEPTH=.4	41.586								
S/DEPTH=.3	32.43								
S/DEPTH=.2	120.72								
S/DEPTH=.1	13.018								
SURFACE	57.938	12.194	-1.931	-2.136	-2.393	-2.019	-1.955	-2.149	-2.144
S/DEPTH=.9	38.652	13.419	-.718	-2.093	-2.360	-2.026	-1.967	-2.142	-2.129
S/DEPTH=.8	27.5	105.18	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.7	25.22	100.95	*****	-2.038	-2.338	-2.034	-1.982	-2.133	-2.114
S/DEPTH=.6	36.440	14.035	-.299	-1.992	-2.284	-2.041	-1.994	-2.125	-2.101
S/DEPTH=.5	23.22	96.33	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.4	35.574	14.264	-.124	-1.953	-2.256	-2.047	-2.004	-2.119	-2.091
S/DEPTH=.3	21.43	93.02	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.2	34.856	14.450	.025	-1.921	-2.233	-2.051	-2.012	-2.114	-2.083
S/DEPTH=.1	19.8	90.4	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	34.277	14.595	.149	-1.695	-2.216	-2.055	-2.019	-2.110	-2.077
S/DEPTH=.9	18.52	88.42	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.8	33.834	14.705	.246	-1.875	-2.203	-2.057	-2.024	-2.107	-2.072
S/DEPTH=.7	17.52	86.92	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.6	33.520	14.781	.315	-1.861	-2.194	-2.059	-2.027	-2.105	-2.069
S/DEPTH=.5	16.62	85.9	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.4	33.333	14.827	.357	-1.853	-2.188	-2.060	-2.029	-2.104	-2.067
S/DEPTH=.3	16.32	85.35	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.2	33.271	14.841	.371	-1.850	-2.186	-2.060	-2.030	-2.104	-2.067
S/DEPTH=.1	16.22	85.12	*****	*****	*****	*****	*****	*****	*****

CASE 1=D

TABLE II-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD.....DEFINED IN EQUATION (22)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.959	.210	.014	.039	.003	.040	.040	.041	.041
	47.0%	134.0%	*****	*****	*****	*****	*****	*****	*****
SURFACE	.000	16.438	1.520	.737	.168	.232	.154	.141	.000
	*****	95.4%	3.3%	*****	*****	*****	*****	*****	*****
S/DEPTH=1.7	.000								

S/DEPTH=1.6	.000								

S/DEPTH=1.5	.000								

S/DEPTH=1.4	.000								

S/DEPTH=1.3	.000								

S/DEPTH=1.2	.000								

S/DEPTH=1.1	.000								

S/DEPTH=1.0	.000								

S/DEPTH=.9	.000								

S/DEPTH=.8	.000								

S/DEPTH=.7	.000								

S/DEPTH=.6	.000								

S/DEPTH=.5	.000								

S/DEPTH=.4	.000								

S/DEPTH=.3	.000								

S/DEPTH=.2	.000								

S/DEPTH=.1	.000								

S/DEPTH=.0	.000								

CASE 1-D

TABLE 111-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.959	.210	.014	.039	.043	.040	.040	.041	.041
	47.9%	134.6%	*****	*****	*****	*****	*****	*****	*****
SURFACE	.000	1066.430	1.370	78.561	21.197	-31.411	21.136	19.014	.001
	*****	98.2%	*****	24.9%	*****	*****	*****	*****	*****
S/DEPTH=1.7	.000								

S/DEPTH=1.6	.000								

S/DEPTH=1.5	.000								

S/DEPTH=1.4	.000								

S/DEPTH=1.3	.000								

S/DEPTH=1.2	.000								

S/DEPTH=1.1	.000	1032.223							
	*****	98.2%							
S/DEPTH=1.0	.000	983.334							
	*****	98.1%							
S/DEPTH=.9	.000	939.662	31.900	73.151	19.406	-26.294	18.970	17.155	.001
	*****	98.0%	*****	20.0%	*****	*****	*****	*****	*****
S/DEPTH=.8	.000	901.117	61.558	66.042	17.061	-24.386	16.278	14.800	.001
	*****	97.9%	*****	12.0%	*****	*****	*****	*****	*****
S/DEPTH=.7	.000	867.094	86.672	61.026	15.099	-21.159	14.062	12.855	.001
	*****	97.8%	56.0%	*****	*****	*****	*****	*****	*****
S/DEPTH=.6	.000	836.609	107.656	57.293	13.478	-18.523	12.256	11.267	.001
	*****	97.8%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.5	.000	814.515	124.856	54.071	12.162	-16.405	10.809	9.991	.000
	*****	97.7%	69.5%	*****	*****	*****	*****	*****	*****
S/DEPTH=.4	.000	794.915	138.556	51.618	11.123	-14.747	9.678	8.992	.000
	*****	97.6%	72.5%	*****	*****	*****	*****	*****	*****
S/DEPTH=.3	.000	779.775	148.084	49.822	10.337	-13.503	8.831	8.242	.000
	*****	97.6%	74.5%	*****	*****	*****	*****	*****	*****
S/DEPTH=.2	.000	769.016	156.311	48.599	9.789	-12.638	8.243	7.721	.000
	*****	97.6%	75.7%	*****	*****	*****	*****	*****	*****
S/DEPTH=.1	.000	762.584	160.659	47.898	9.464	-12.129	7.896	7.414	.000
	*****	97.5%	76.4%	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	.000	760.443	162.101	47.655	9.357	-11.961	7.782	7.312	.000
	*****	97.5%	76.6%	*****	*****	*****	*****	*****	*****

CASE 1=D

TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.959	.210	.014	.039	.043	.040	.040	.041	.041
	47.9%	-134.6%	*****	*****	*****	*****	*****	*****	*****
SURFACE	.995.770	595.048	183.567	49.707	39.220	-8.018	-13.706	8.668	14.515
S/DEPTH=1.7	98.3%	102.7%	108.10%	*****	*****	*****	*****	*****	*****
S/DEPTH=1.6	.956.856	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
S/DEPTH=1.5	.913.698	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
S/DEPTH=1.4	.861.608	98.1%	98.1%	98.1%	98.1%	98.1%	98.1%	98.1%	98.1%
S/DEPTH=1.3	.803.718	98.1%	98.1%	98.1%	98.1%	98.1%	98.1%	98.1%	98.1%
S/DEPTH=1.2	.742.128	98.1%	98.1%	98.1%	98.1%	98.1%	98.1%	98.1%	98.1%
S/DEPTH=1.1	.678.404	98.1%	98.1%	98.1%	98.1%	98.1%	98.1%	98.1%	98.1%
S/DEPTH=1.0	.613.966	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
S/DEPTH=.9	.549.339	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
S/DEPTH=.8	.485.139	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
S/DEPTH=.7	.421.680	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
S/DEPTH=.6	.359.122	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
S/DEPTH=.5	.297.507	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
S/DEPTH=.4	.236.788	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
S/DEPTH=.3	.176.851	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
S/DEPTH=.2	.117.539	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
S/DEPTH=.1	.058.659	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
	171.131	155.726	155.526	155.526	155.526	155.526	155.526	155.526	155.526
	105.7%	105.8%	105.8%	105.8%	105.8%	105.8%	105.8%	105.8%	105.8%
	376.491	376.491	376.491	376.491	376.491	376.491	376.491	376.491	376.491
	102.8%	102.8%	102.8%	102.8%	102.8%	102.8%	102.8%	102.8%	102.8%
	315.553	315.553	315.553	315.553	315.553	315.553	315.553	315.553	315.553
	103.0%	103.0%	103.0%	103.0%	103.0%	103.0%	103.0%	103.0%	103.0%
	259.717	259.717	259.717	259.717	259.717	259.717	259.717	259.717	259.717
	105.5%	105.5%	105.5%	105.5%	105.5%	105.5%	105.5%	105.5%	105.5%
	120.476	120.476	120.476	120.476	120.476	120.476	120.476	120.476	120.476
	105.4%	105.4%	105.4%	105.4%	105.4%	105.4%	105.4%	105.4%	105.4%
	210.546	210.546	210.546	210.546	210.546	210.546	210.546	210.546	210.546
	101.545	101.545	101.545	101.545	101.545	101.545	101.545	101.545	101.545
	105.3%	105.3%	105.3%	105.3%	105.3%	105.3%	105.3%	105.3%	105.3%
	171.131	171.131	171.131	171.131	171.131	171.131	171.131	171.131	171.131
	105.3%	105.3%	105.3%	105.3%	105.3%	105.3%	105.3%	105.3%	105.3%
	105.3%	105.3%	105.3%	105.3%	105.3%	105.3%	105.3%	105.3%	105.3%
	161.867	161.867	161.867	161.867	161.867	161.867	161.867	161.867	161.867
	105.2%	105.2%	105.2%	105.2%	105.2%	105.2%	105.2%	105.2%	105.2%
	8.372	8.372	8.372	8.372	8.372	8.372	8.372	8.372	8.372
	5.382	5.382	5.382	5.382	5.382	5.382	5.382	5.382	5.382
	1.031	1.031	1.031	1.031	1.031	1.031	1.031	1.031	1.031
	1.592	1.592	1.592	1.592	1.592	1.592	1.592	1.592	1.592
	1.841	1.841	1.841	1.841	1.841	1.841	1.841	1.841	1.841
	2.919	2.919	2.919	2.919	2.919	2.919	2.919	2.919	2.919
	1.094	1.094	1.094	1.094	1.094	1.094	1.094	1.094	1.094
	.931	.931	.931	.931	.931	.931	.931	.931	.931
	.590	.590	.590	.590	.590	.590	.590	.590	.590
	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
	7.643	7.643	7.643	7.643	7.643	7.643	7.643	7.643	7.643
	12.557	12.557	12.557	12.557	12.557	12.557	12.557	12.557	12.557
	10.301	10.301	10.301	10.301	10.301	10.301	10.301	10.301	10.301
	8.378	8.378	8.378	8.378	8.378	8.378	8.378	8.378	8.378
	6.727	6.727	6.727	6.727	6.727	6.727	6.727	6.727	6.727
	5.297	5.297	5.297	5.297	5.297	5.297	5.297	5.297	5.297
	4.042	4.042	4.042	4.042	4.042	4.042	4.042	4.042	4.042
	2.919	2.919	2.919	2.919	2.919	2.919	2.919	2.919	2.919
	1.094	1.094	1.094	1.094	1.094	1.094	1.094	1.094	1.094
	.931	.931	.931	.931	.931	.931	.931	.931	.931
	.590	.590	.590	.590	.590	.590	.590	.590	.590
	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 1=0

TABLE V=DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.959	.9210	.8814	.8339	.7863	.7387	.6911	.6435	.5959
	47.9%	134.6%	*****	*****	*****	*****	*****	*****	*****
SURFACE	2985.630	230.375	157	3.661	4.693	4.061	3.901	4.339	4.225
	63.4%	358.3%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.7	2622.638								
	100.0%								
S/DEPTH=1.6	2624.681								
	100.0%								
S/DEPTH=1.5	2258.741								
	100.0%								
S/DEPTH=1.4	2019.834								
	45.9%								
S/DEPTH=1.3	1803.792								
	43.4%								
S/DEPTH=1.2	1607.114								
	41.4%								
S/DEPTH=1.1	1426.842								
	39.6%								
S/DEPTH=1.0	1260.462								
	37.9%								
S/DEPTH=.9	1105.828								
	36.3%								
S/DEPTH=.8	961.089								
	34.9%								
S/DEPTH=.7	824.640								
	33.7%								
S/DEPTH=.6	696.076								
	32.6%								
S/DEPTH=.5	571.148								
	31.7%								
S/DEPTH=.4	451.740								
	30.9%								
S/DEPTH=.3	335.836								
	30.3%								
S/DEPTH=.2	222.494								
	29.9%								
S/DEPTH=.1	110.832								
	28.0%								
S/DEPTH=.0	0.000								

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TABLE V DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.959	.9210	.8014	.6039	.0043	.0040	.0040	.0041	.0041
	47.9%	134.6%	*****	*****	*****	*****	*****	*****	*****
SURFACE	.000	1001.659	110.000	54.979	12.614	17.364	11.496	10.552	.001
S/DEPTH=1.7	*****	97.4%	52.5%	*****	*****	*****	*****	*****	*****
S/DEPTH=1.6	*****	.000	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.5	*****	.000	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.4	*****	.000	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.3	*****	.000	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.2	*****	.000	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.1	*****	.000	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.0	*****	934.314	97.8%	83.580	97.7%	934.314	97.8%	83.580	97.7%
S/DEPTH=.9	*****	.000	737.472	108.492	49.716	11.268	15.326	10.118	9.330
S/DEPTH=.8	*****	.000	645.474	103.780	42.738	9.448	12.698	8.360	7.736
S/DEPTH=.7	*****	.000	557.084	96.332	36.395	7.843	10.426	6.847	6.356
S/DEPTH=.6	*****	.000	471.816	86.583	30.417	6.417	8.447	5.534	5.153
S/DEPTH=.5	*****	.000	389.195	74.927	24.856	5.137	6.704	4.384	4.092
S/DEPTH=.4	*****	.000	308.761	61.728	19.577	3.975	5.150	3.362	3.146
S/DEPTH=.3	*****	.000	230.063	47.325	10.510	2.904	3.741	2.439	2.286
S/DEPTH=.2	*****	.000	152.860	32.035	9.593	1.900	2.437	1.587	1.490
S/DEPTH=.1	*****	.000	76.116	16.162	4.773	.939	1.202	.782	.735
S/DEPTH=.0	*****	.000	97.5%	*****	*****	*****	*****	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 1=D

TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA ETA/HEIGHT=	0 .959	10.0 .210	20.0 .014	30.0 -0.039	50.0 -0.043	75.0 -0.040	100.0 -0.040	130.0 -0.041	180.0 -0.041
	47.9%	-134.6%	*****	*****	*****	*****	*****	*****	*****
SURFACE	312.254	126.251	0.111	-1.861	-2.434	-1.954	-1.867	-2.114	-2.068
S/DEPTH=1.7	75.5%	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.6	2841.047	100.0%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.5	2349.128	100.0%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.4	1936.677	100.0%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.3	1590.054	52.0%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.2	1298.223	48.7%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.1	1052.227	46.2%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.0	844.788	43.7%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=0.9	669.983	41.5%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=0.8	522.991	39.3%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=0.7	390.887	37.4%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=0.6	297.488	35.6%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=0.5	213.219	34.0%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=0.4	145.017	31.2%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=0.3	91.250	28.8%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=0.2	50.658	26.8%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=0.1	22.305	24.3%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=0.0	5.545	21.0%	*****	*****	*****	*****	*****	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 1=D

TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THEYA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.959	.210	.014	.039	.043	.040	.040	.041	.041
	47.9%	.134.6%							
SURFACE	.000	617.287	41.627	28.920	6.986	9.866	6.568	5.981	.000
S/DEPTH=1.7	*****	97.1%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.6	*****								
S/DEPTH=1.5	*****								
S/DEPTH=1.4	*****								
S/DEPTH=1.3	*****								
S/DEPTH=1.2	*****								
S/DEPTH=1.1	*****	541.034							
S/DEPTH=1.0	*****	97.9%	435.223						
S/DEPTH=.9	*****	97.8%	343.884	40.223	23.999	5.730	7.960	5.280	4.839
S/DEPTH=.8	*****	97.8%	265.653	36.242	18.062	4.181	5.723	3.784	3.482
S/DEPTH=.7	*****	97.7%	199.333	30.677	13.263	2.975	4.017	2.647	2.446
S/DEPTH=.6	*****	97.7%	143.884	24.358	9.406	2.047	2.728	1.792	1.663
S/DEPTH=.5	*****	97.6%	98.423	17.961	6.345	1.342	1.768	1.158	1.078
S/DEPTH=.4	*****	97.6%	62.211	12.033	3.966	.818	1.067	.697	.651
S/DEPTH=.3	*****	97.6%	34.654	7.001	2.193	.443	.573	.374	.350
S/DEPTH=.2	*****	15.295	3.184	.962	.191	.191	.246	.160	.150
S/DEPTH=.1	*****	3.808	.807	.239	.047	.047	.060	.039	.037
S/DEPTH=.0	*****	.000	.000	.000	.000	.000	.000	.000	.000

TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

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TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR LINEAR WAVE THEORY REPRESENTATION.... DEFINED IN EQ.(35) SURFACE .000 .010 .018 .023 .023 .010 .006 .013 .000									
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR STREAM FUNCTION THEORY REPRESENTATION.... DEFINED IN EQ.(35) SURFACE .000 .000 .000 .000 .000 .000 .000 .000 .000									
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR LINEAR WAVE THEORY REPRESENTATION.... DEFINED IN EQ.(36) SURFACE .048 .045 .037 .024 .008 .041 .045 .008 .047									
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR STREAM FUNCTION THEORY REPRESENTATION.... DEFINED IN EQ.(37) SURFACE .020 .028 .002 .005 .007 .001 .000 .003 .003									

CASE 1-D

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH	
	DEFINED IN EQUATION (37)	
	.146	(= 23.6%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY	
	DEFINED IN EQUATION (38)	
	.093	(= 436.0%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY	
	DEFINED IN EQUATION (39)	
	.119	(= 322.0%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY	
	DEFINED IN EQUATION (40)	
	.213	(= 372.0%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX	
	DEFINED IN EQUATION (41)	
	.215	(= 363.6%)
(6)	DIMENSIONLESS GROUP VELOCITY	
	DEFINED IN EQUATION (42)	
	1.012	(= 1.6%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM	
	DEFINED IN EQUATION (43)	
	.234	(= 327.0%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION	
	DEFINED IN EQUATION (44)	
	.297	(= 402.9%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION	
	DEFINED IN EQUATION (45)	
	.082	(= 506.5%)

CASE 1=D

TABLE XI(CONT)=OVERALL WAVE PARAMETERS,,, DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.013785	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.033447	STREAM FUNCTION	.009530
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.024341	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.047779	STREAM FUNCTION	.036365
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.394640	STREAM FUNCTION	.618771
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.004152	STREAM FUNCTION	.247901

CASE 2=A

17TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO=(G/g,28316)*T**2$
H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
DPT = WATER DEPTH L = WAVE LENGTH
PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .000974 DPT/LO = .005000
H/DPT = .194887
L/LO = .186504 PSI/(G*H*T) = *.000405

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = *.424866=01 X(2)/(H*T*G) = *.161735=01
X(3)/(H*T*G) = *.715367=02 X(4)/(H*T*G) = *.322226=02
X(5)/(H*T*G) = *.144162=02 X(6)/(H*T*G) = *.616055=03
X(7)/(H*T*G) = *.276349=03 X(8)/(H*T*G) = *.117942=03
X(9)/(H*T*G) = *.495603=04 X(10)/(H*T*G) = *.202043=04
X(11)/(H*T*G) = *.805877=05 X(12)/(H*T*G) = *.311340=05
X(13)/(H*T*G) = *.115516=05 X(14)/(H*T*G) = *.404538=06
X(15)/(H*T*G) = *.129699=06 X(16)/(H*T*G) = *.357995=07
X(17)/(H*T*G) = *.617704=08

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

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TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)												
THETA	ETA/HEIGHT	0	.857	.713	.424	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT		41.7%		30.9%		10.9%	-144.2%	177	-1060	129	141	143
								635.7%	200.1%	38.5%	168.6%	250.4%
SURFACE		.000	8.027	9.528	6.941	2.142	.365	.058	.003	.000	.000	.000
S/DEPTH=1.1		.000	92.6%	87.7%	75.5%	19.4%	.000	.000	.000	.000	.000	.000
S/DEPTH=1.0		.000	92.2%	87.7%	76.6%	1.969	.341	.054	.003	.000	.000	.000
S/DEPTH=.9		.000	92.0%	87.7%	76.5%	1.969	.341	.054	.003	.000	.000	.000
S/DEPTH=.8		.000	91.8%	87.5%	76.5%	1.767	.307	.049	.002	.000	.000	.000
S/DEPTH=.7		.000	91.7%	87.4%	76.5%	-8.6%	.272	.044	.002	.000	.000	.000
S/DEPTH=.6		.000	91.5%	87.2%	76.5%	1.560	.236	.038	.002	.000	.000	.000
S/DEPTH=.5		.000	91.4%	87.1%	76.4%	-6.8%	.198	.032	.002	.000	.000	.000
S/DEPTH=.4		.000	91.3%	87.0%	76.4%	-6.1%	.160	.026	.001	.000	.000	.000
S/DEPTH=.3		.000	91.2%	87.0%	76.4%	-5.5%	.120	.019	.001	.000	.000	.000
S/DEPTH=.2		.000	91.1%	86.9%	76.4%	-5.1%	.081	.013	.001	.000	.000	.000
S/DEPTH=.1		.000	91.1%	86.9%	76.3%	.229	.040	.006	.000	.000	.000	.000
S/DEPTH=.0		.000	91.1%	86.8%	76.3%	.000	.000	.000	.000	.000	.000	.000
		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 2-A

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD, . . . DEFINED IN EQUATION (23)

THETA ETA/HEIGHT	0 .857 41.7%	10.0 30.9%	20.0 .424 10.0%	30.0 .177 14.02%	50.0 -0.060 635.7%	75.0 -1.129 200.1%	100.0 -1.141 38.5%	130.0 -1.143 168.6%	180.0 -250.4%
SURFACE	.000	305.238	350.790	245.559	71.893	12.026	1.916	.097	.000
S/DEPTH=1.1	*****	94.2%	90.0%	79.0%	-12.2%	*****	*****	*****	*****
S/DEPTH=1.0	*****	297.191							
	*****	94.1%							
S/DEPTH=.9	*****	278.370	339.862	245.204					
	*****	93.7%	89.7%	79.1%					
S/DEPTH=.8	*****	262.019	327.895	248.072	74.358	12.513	1.994	.101	.000
	*****	93.3%	89.4%	79.0%	-7.9%	*****	*****	*****	*****
S/DEPTH=.7	*****	247.917	317.293	242.852	76.850	13.109	2.092	.106	.000
	*****	92.9%	89.1%	79.0%	-4.1%	*****	*****	*****	*****
S/DEPTH=.6	*****	235.875	308.025	241.618	79.031	13.640	2.181	.111	.000
	*****	92.6%	88.8%	78.9%	-1.0%	*****	*****	*****	*****
S/DEPTH=.5	*****	225.735	300.063	240.434	80.907	14.105	2.259	.115	.000
	*****	92.3%	88.5%	78.9%	1.6%	*****	*****	*****	*****
S/DEPTH=.4	*****	217.365	293.377	239.352	82.484	14.502	2.325	.118	.000
	*****	92.0%	88.3%	78.8%	3.7%	*****	*****	*****	*****
S/DEPTH=.3	*****	210.657	287.943	238.413	83.766	14.828	2.380	.121	.000
	*****	91.8%	88.1%	78.6%	5.3%	*****	*****	*****	*****
S/DEPTH=.2	*****	205.526	283.739	237.650	84.759	15.084	2.423	.123	.000
	*****	91.6%	87.9%	78.7%	6.5%	*****	*****	*****	*****
S/DEPTH=.1	*****	201.906	280.749	237.088	85.465	15.267	2.454	.125	.000
	*****	91.4%	87.6%	78.7%	7.4%	*****	*****	*****	*****
S/DEPTH=.0	*****	199.752	278.960	236.744	85.888	15.377	2.472	.126	.000
	*****	91.3%	87.7%	78.7%	7.9%	*****	*****	*****	*****
	*****	199.037	278.365	236.628	86.029	15.414	2.479	.126	.000
	*****	91.3%	87.7%	78.7%	8.0%	*****	*****	*****	*****

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TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	41.7%	30.9%	20.9%	14.42%	7.77	635.7%	200.1%	38.3%	168.6%
SURFACE	294.124	155.209	44.915	109.475	52.427	9.777	1.590	.070	.027
	93.4%	87.6%	140.3%	115.0%	121.8%	*****	*****	*****	*****
S/DEPTH=1.1	272.766	149.671							
	92.8%	87.2%							
S/DEPTH=1.0	242.247	135.061							
	92.7%	87.1%							
S/DEPTH=.9	213.358	121.368	37.642	104.785	47.959	9.126	1.488	.065	.025
	92.5%	87.0%	149.4%	114.6%	120.1%	*****	*****	*****	*****
S/DEPTH=.8	186.177	107.419	23.994	79.623	42.817	8.219	1.342	.059	.022
	92.4%	87.0%	155.3%	115.2%	120.0%	*****	*****	*****	*****
S/DEPTH=.7	160.199	93.591	18.874	66.149	37.604	7.275	1.189	.053	.019
	92.2%	86.9%	161.4%	115.5%	120.0%	*****	*****	*****	*****
S/DEPTH=.6	135.533	79.904	14.646	57.289	32.831	6.297	1.030	.046	.016
	92.1%	86.9%	*****	115.8%	119.9%	*****	*****	*****	*****
S/DEPTH=.5	111.199	66.353	11.151	46.952	27.010	5.292	.866	.039	.013
	92.0%	86.9%	*****	116.1%	119.8%	*****	*****	*****	*****
S/DEPTH=.4	88.226	52.924	8.244	37.447	21.651	4.262	.698	.031	.011
	92.0%	86.8%	*****	116.3%	119.8%	*****	*****	*****	*****
S/DEPTH=.3	65.653	39.598	5.795	27.486	16.262	3.215	.527	.024	.008
	91.9%	86.8%	*****	116.5%	119.8%	*****	*****	*****	*****
S/DEPTH=.2	43.525	26.353	3.681	18.182	10.853	2.150	.353	.016	.005
	91.8%	86.8%	*****	116.5%	*****	*****	*****	*****	*****
S/DEPTH=.1	21.689	13.162	1.786	9.448	5.430	1.077	.177	.008	.003
	91.8%	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE V-DIMENSIONLESS DRAG FORC COMPONENT FIELD.....DEFINED IN EQUATION (25)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.857	.713	.424	.177	.060	.129	.141	.143	.143
	41.7%	30.9%	-10.9%	-144.2%	635.7%	200.1%	38.5%	168.6%	-250.4%
SURFACE	906.960	645.488	245.541	49.199	-3.067	-19.083	-23.059	-23.800	-23.850
S/DEPTH=1.0	62.5%	48.7%	22.4%	415.5%	*****	*****	*****	*****	*****
S/DEPTH=1.0	842.737	619.947	227.196	47.941	-2.660	-17.507	-21.310	-22.032	-22.079
S/DEPTH=1.0	59.4%	46.5%	20.9%	386.8%	*****	*****	*****	*****	*****
S/DEPTH=1.0	751.383	556.066	204.806	44.088	-2.218	-15.561	-18.950	-19.583	-19.626
S/DEPTH=1.0	58.6%	45.7%	20.5%	386.8%	*****	*****	*****	*****	*****
S/DEPTH=1.0	664.626	494.451	182.278	39.941	*****	*****	*****	*****	*****
S/DEPTH=1.0	57.9%	45.2%	20.1%	386.8%	*****	*****	*****	*****	*****
S/DEPTH=1.0	581.803	434.816	182.278	39.941	-1.880	-13.573	-16.573	-17.135	-17.172
S/DEPTH=1.0	57.4%	44.7%	20.1%	386.8%	*****	*****	*****	*****	*****
S/DEPTH=1.0	502.323	376.895	159.646	35.530	*****	*****	*****	*****	*****
S/DEPTH=1.0	56.9%	44.1%	19.8%	386.8%	*****	*****	*****	*****	*****
S/DEPTH=1.0	425.656	320.437	136.939	30.888	-1.549	-11.682	-14.200	-14.687	-14.719
S/DEPTH=1.0	56.4%	43.9%	19.6%	386.8%	*****	*****	*****	*****	*****
S/DEPTH=1.0	351.318	265.208	114.177	26.045	-1.249	-9.646	-11.829	-12.239	-12.266
S/DEPTH=1.0	56.1%	43.6%	19.4%	386.8%	*****	*****	*****	*****	*****
S/DEPTH=1.0	278.868	210.985	91.377	21.036	*****	*****	*****	*****	*****
S/DEPTH=1.0	55.8%	43.3%	19.2%	386.8%	*****	*****	*****	*****	*****
S/DEPTH=1.0	207.891	157.554	68.551	15.694	*****	*****	*****	*****	*****
S/DEPTH=1.0	55.5%	43.1%	19.1%	386.8%	*****	*****	*****	*****	*****
S/DEPTH=1.0	138.000	104.713	45.709	10.652	*****	*****	*****	*****	*****
S/DEPTH=1.0	55.4%	42.9%	19.0%	386.8%	*****	*****	*****	*****	*****
S/DEPTH=1.0	68.823	52.260	22.857	5.343	-2.22	-1.919	-2.364	-2.448	-2.453
S/DEPTH=1.0	55.3%	42.9%	19.0%	386.8%	*****	*****	*****	*****	*****
S/DEPTH=1.0	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.0	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE VI=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)										
THETA =	10.0	20.0	30.0	50.0	75.0	100.0	130.0	160.0		
ETA/HEIGHT=	.857	.713	.424	.177	.060	.129	.141	.143		
	41.7%	30.9%	10.9%	144.2%	635.7%	200.1%	38.3%	168.6%		-250.4%
SURFACE	.000	264.878	327.105	248.385	80.416	13.911	2.225	.113	.000	
*****	92.8%	88.5%	77.8%	5.3%	*****	*****	*****	*****	*****	
S/DEPTH=.1	.000	253.156								
*****	92.5%									
S/DEPTH=.10	.000	224.399	298.610	239.905						
*****	92.2%	88.5%	78.8%	78.8%						
S/DEPTH=.9	.000	197.399	265.234	215.440	73.956	12.993	2.083	.106	.000	
*****	92.1%	88.3%	78.8%	78.8%	3.2%	*****	*****	*****	*****	
S/DEPTH=.8	.000	171.921	232.986	191.094	66.393	11.711	1.879	.096	.000	
*****	91.9%	88.2%	78.8%	78.8%	4.2%	*****	*****	*****	*****	
S/DEPTH=.7	.000	147.747	201.731	166.870	58.597	10.373	1.665	.085	.000	
*****	91.8%	88.1%	78.8%	78.8%	5.1%	*****	*****	*****	*****	
S/DEPTH=.6	.000	124.682	171.337	142.768	50.597	8.985	1.443	.074	.000	
*****	91.6%	88.0%	78.7%	78.7%	5.9%	*****	*****	*****	*****	
S/DEPTH=.5	.000	102.541	141.676	118.780	42.425	7.554	1.214	.062	.000	
*****	91.5%	87.9%	78.7%	78.7%	6.5%	*****	*****	*****	*****	
S/DEPTH=.4	.000	81.154	112.620	94.893	34.110	6.087	.978	.050	.000	
*****	91.5%	87.8%	78.7%	78.7%	7.0%	*****	*****	*****	*****	
S/DEPTH=.3	.000	60.358	84.046	71.092	25.682	4.591	.738	.038	.000	
*****	91.4%	87.8%	78.7%	78.7%	7.4%	*****	*****	*****	*****	
S/DEPTH=.2	.000	39.998	55.832	47.356	17.168	3.073	.494	.025	.000	
*****	91.3%	87.7%	78.7%	78.7%	7.7%	*****	*****	*****	*****	
S/DEPTH=.1	.000	19.928	27.856	23.667	8.598	1.540	.248	.013	.000	
*****	91.3%	87.7%	78.7%	78.7%	*****	*****	*****	*****	*****	
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000	
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	

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TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.857	.713	.424	.177	.060	.129	.141	.143	.143
	41.7%	30.9%	10.9%	-144.2%	635.7%	200.1%	58.3%	-168.8%	-230.4%
SURFACE	560.828	382.307	132.298	23.869	-1.716	9.392	-11.230	11.570	11.594
	66.3%	55.2%	24.6%	*****	*****	*****	*****	*****	*****
S/DEPTH=1.1	488.014	353.713							
	61.3%	48.3%							
S/DEPTH=1.0	392.052	286.618	113.198	22.589					
	60.1%	47.1%	22.0%	*****					
S/DEPTH=.9	308.597	228.066	91.929	18.931	-1.331	-7.972	9.610	-9.915	-9.936
	58.2%	46.3%	21.3%	*****	*****	*****	*****	*****	*****
S/DEPTH=.8	235.167	177.361	72.781	15.408	.981	-6.266	7.587	7.634	7.650
	58.4%	45.6%	20.8%	*****	*****	*****	*****	*****	*****
S/DEPTH=.7	179.531	133.907	55.808	12.102	1.705	4.775	5.805	5.997	6.010
	57.7%	44.9%	20.3%	*****	*****	*****	*****	*****	*****
S/DEPTH=.6	128.676	97.198	41.048	9.086	.490	3.494	4.262	4.406	4.416
	57.0%	44.4%	19.9%	*****	*****	*****	*****	*****	*****
S/DEPTH=.5	86.773	66.813	28.530	6.424	.324	2.418	2.958	3.060	3.066
	56.5%	43.9%	19.6%	*****	*****	*****	*****	*****	*****
S/DEPTH=.4	56.156	42.405	18.270	4.172	.199	1.543	1.893	1.958	1.962
	56.0%	43.5%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.3	31.504	23.699	10.281	2.573	.108	.866	1.064	1.101	1.104
	55.7%	43.0%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.2	13.824	10.484	4.571	1.063	.047	.384	.473	.490	.491
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.1	3.443	2.614	1.143	.267	.012	.096	.118	.122	.123
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE VIII=DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA ETA/HEIGHT	0 .857 41.7%	10.0 .713 30.9%	20.0 .424 10.9%	30.0 .177 14.42%	50.0 0.060 63.57%	75.0 0.129 200.1%	100.0 0.141 38.3%	130.0 0.143 168.6%	180.0 0.143 250.4%
SURFACE	.000 *****	162.006 93.5%	184.076 88.8%	129.347 76.8%	38.593 17.0%	6.510 *****	1.037 *****	.053 *****	.000 *****
S/DEPTH=1.1	.000 *****	148.683 92.9%							
S/DEPTH=1.0	.000 *****	118.673 92.6%	154.399 88.6%	120.721 78.9%	32.496 16%	5.650 *****	.904 *****	.046 *****	.000 *****
S/DEPTH=.9	.000 *****	93.009 92.4%	122.682 88.6%	97.478 78.9%	26.070 2.3%	4.561 *****	.731 *****	.037 *****	.000 *****
S/DEPTH=.8	.000 *****	71.340 92.2%	95.262 88.4%	76.783 78.8%	4.82 4.8%	3.558 *****	.571 *****	.029 *****	.000 *****
S/DEPTH=.7	.000 *****	53.200 92.0%	71.813 88.3%	58.614 78.8%	20.224 3.7%	2.656 *****	.426 *****	.022 *****	.000 *****
S/DEPTH=.6	.000 *****	38.200 91.8%	52.051 88.1%	42.947 78.8%	15.026 4.8%	1.870 *****	.300 *****	.015 *****	.000 *****
S/DEPTH=.5	.000 *****	26.015 91.7%	35.731 88.0%	29.753 78.7%	10.533 5.8%	1.194 *****	.194 *****	.010 *****	.000 *****
S/DEPTH=.4	.000 *****	16.385 91.5%	22.652 87.9%	19.003 78.7%	6.792 3.643	1.210 *****	.110 *****	.006 *****	.000 *****
S/DEPTH=.3	.000 *****	9.102 91.2%	12.647 87.8%	10.671 78.7%	3.843 1.715	.686 *****	.049 *****	.003 *****	.000 *****
S/DEPTH=.2	.000 *****	4.009 91.0%	5.591 87.7%	4.737 78.7%	1.715 0.77	.307 *****	.012 *****	.001 *****	.000 *****
S/DEPTH=.1	.000 *****	.997 90.9%	1.393 87.6%	1.183 78.7%	.430 0.00	.077 *****	.000 *****	.000 *****	.000 *****
S/DEPTH=.0	.000 *****	.000 90.8%	.000 87.5%	.000 78.6%	.000 0.00	.000 *****	.000 *****	.000 *****	.000 *****

TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

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TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.001	.001	.002	.002	.001	.001	.002	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.011	.011	.009	.006	.002	.010	.011	.002	.011
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.001	.000	.000	.000	.000	.000	.000	.000	.000

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TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.187 (5.4%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.294 (66.8%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.311 (62.0%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.605 (65.8%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.591 (67.6%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.977 (1.1%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.618 (61.9%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.859 (72.4%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.268 (62.8%)

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TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.001216	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.007888	STREAM FUNCTION	.000161
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.001826	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.011230	STREAM FUNCTION	.000681
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.098698	STREAM FUNCTION	.163273
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.003029	STREAM FUNCTION	.045645

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19TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318)^{1/3} T^{**2}$
 H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .001946 DPT/LO = .005000
 T/DPT = .389164
 L/LO = .199023 PSI/(G**T) = -.000574

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H**G) =	-.308370-01	X(2)/(H**G) =	-.132363-01
X(3)/(H**G) =	-.693747-02	X(4)/(H**G) =	-.380673-02
X(5)/(H**G) =	-.209993-02	X(6)/(H**G) =	-.115105-02
X(7)/(H**G) =	-.623967-03	X(8)/(H**G) =	-.333323-03
X(9)/(H**G) =	-.175877-03	X(10)/(H**G) =	-.907759-04
X(11)/(H**G) =	-.460921-04	X(12)/(H**G) =	-.228248-04
X(13)/(H**G) =	-.110152-04	X(14)/(H**G) =	-.513379-05
X(15)/(H**G) =	-.228778-05	X(16)/(H**G) =	-.952306-06
X(17)/(H**G) =	-.353260-06	X(18)/(H**G) =	-.988441-07
X(19)/(H**G) =	-.155364-08		

CASE 2-B

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	44.7%	9.04	6.66	2.28	.031	.079	.096	.096	.096
		18.8%	106.3%	*****	506.8%	230.5%	9.5%	298.6%	420.5%
SURFACE	34.035	22.086	7.678	.847	2.697	3.183	3.220	3.224	3.222
S/DEPTH=1.3	47.3%	20.1%	119.3%	*****	526.3%	245.0%	4.0%	321.3%	449.8%
	100.0%								
S/DEPTH=1.2	31.611	21.917							
	47.3%	19.4%							
S/DEPTH=1.1	30.258	21.473							
	40.9%	18.0%							
S/DEPTH=1.0	29.075	21.065	8.025	.888					
	30.7%	16.7%	108.5%	*****					
S/DEPTH= .9	28.047	20.696	8.360	1.198	2.658	3.180	3.219	3.224	3.222
	36.7%	15.5%	99.6%	*****	529.5%	244.5%	4.2%	321.3%	449.7%
S/DEPTH= .8	27.156	20.366	8.643	1.473	2.603	3.176	3.219	3.224	3.222
	34.8%	14.4%	92.5%	*****	536.9%	240.3%	4.5%	320.7%	449.7%
S/DEPTH= .7	26.389	20.075	8.879	1.713	2.558	3.172	3.219	3.224	3.222
	33.1%	13.3%	87.0%	793.1%	543.9%	240.2%	4.7%	319.7%	448.4%
S/DEPTH= .6	25.758	19.823	9.075	1.920	2.517	3.169	3.219	3.224	3.222
	31.6%	12.4%	82.6%	695.2%	550.3%	240.0%	4.9%	318.9%	447.2%
S/DEPTH= .5	25.229	19.610	9.233	2.094	2.481	3.166	3.218	3.224	3.222
	30.2%	11.6%	79.1%	627.9%	556.0%	243.9%	5.0%	318.1%	446.3%
S/DEPTH= .4	24.604	19.436	9.358	2.235	2.451	3.163	3.218	3.224	3.222
	28.1%	10.9%	76.5%	580.9%	560.8%	243.8%	5.2%	317.5%	445.5%
S/DEPTH= .3	24.479	19.301	9.452	2.345	2.428	3.161	3.218	3.224	3.222
	28.3%	10.4%	74.5%	548.5%	564.7%	243.7%	5.3%	317.1%	444.9%
S/DEPTH= .2	24.219	19.204	9.518	2.422	2.412	3.160	3.218	3.224	3.222
	27.7%	10.0%	73.2%	527.1%	567.6%	243.7%	5.3%	316.8%	444.4%
S/DEPTH= .1	24.112	19.146	9.557	2.469	2.401	3.159	3.218	3.224	3.222
	27.3%	9.8%	72.4%	515.0%	569.3%	243.7%	5.4%	316.6%	444.2%
S/DEPTH= .0	24.067	19.127	9.570	2.484	2.398	3.159	3.218	3.224	3.222
	27.2%	9.7%	72.1%	511.1%	569.9%	243.6%	5.4%	316.5%	444.1%

CASE 2-B

TABLE II-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.904	.806	.628	.431	.2079	.095	.096	.096	.096
	44.7%	18.8%	10.6%	5.3%	50.8%	23.5%	9.5%	298.6%	420.5%
SURFACE	.000	12.484	9.476	4.423	.644	.051	.003	.001	.000
	*****	94.8%	86.6%	58.5%	320.4%	*****	*****	*****	*****
S/DEPTH=1.3	.000								

S/DEPTH=1.2	.000	11.953							
	*****	94.6%							
S/DEPTH=1.1	.000	10.563							
	*****	94.3%							
S/DEPTH=1.0	.000	9.288	8.622	4.376					
	*****	94.1%	87.5%	64.1%					
S/DEPTH=.9	.000	8.111	7.681	3.979	.609	.048	.003	.001	.000
	*****	94.0%	87.4%	64.5%	*****	*****	*****	*****	*****
S/DEPTH=.8	.000	7.019	6.764	3.568	.554	.044	.003	.001	.000
	*****	93.8%	87.3%	64.9%	*****	*****	*****	*****	*****
S/DEPTH=.7	.000	5.998	5.869	3.146	.495	.039	.003	.001	.000
	*****	93.7%	87.2%	65.2%	*****	*****	*****	*****	*****
S/DEPTH=.6	.000	5.037	4.993	2.713	.431	.034	.003	.001	.000
	*****	93.5%	87.1%	65.4%	*****	*****	*****	*****	*****
S/DEPTH=.5	.000	4.125	4.134	2.272	.365	.029	.002	.001	.000
	*****	93.4%	87.1%	65.6%	*****	*****	*****	*****	*****
S/DEPTH=.4	.000	3.854	3.820	1.825	.295	.023	.002	.000	.000
	*****	93.3%	87.0%	65.7%	*****	*****	*****	*****	*****
S/DEPTH=.3	.000	2.414	2.457	1.373	.223	.018	.001	.000	.000
	*****	93.3%	87.0%	65.9%	*****	*****	*****	*****	*****
S/DEPTH=.2	.000	1.596	1.633	.917	.150	.012	.001	.000	.000
	*****	93.2%	86.9%	65.9%	*****	*****	*****	*****	*****
S/DEPTH=.1	.000	.794	.815	.459	.075	.006	.000	.000	.000
	*****	93.2%	86.9%	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 2=8

TABLE 111-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.904	.606	.428	.331	.209	.096	.096	.096	.096
	44.7%	18.6%	106.3%	*****	506.8%	236.5%	9.5%	298.6%	420.5%
SURFACE	.000	491.776	343.601	146.652	19.984	1.620	.033	.093	.000
S/DEPTH=1.3	*****	96.8%	90.8%	67.9%	*****	*****	*****	*****	*****
S/DEPTH=1.2	*****	475.855							
S/DEPTH=1.1	*****	96.7%							
S/DEPTH=1.0	*****	435.596							
S/DEPTH=.9	*****	96.4%							
S/DEPTH=.8	*****	400.680							
S/DEPTH=.7	*****	96.1%							
S/DEPTH=.6	*****	370.555							
S/DEPTH=.5	*****	95.8%							
S/DEPTH=.4	*****	344.742							
S/DEPTH=.3	*****	95.5%							
S/DEPTH=.2	*****	322.637							
S/DEPTH=.1	*****	95.2%							
S/DEPTH=.0	*****	304.496							
S/DEPTH=.9	*****	94.9%							
S/DEPTH=.8	*****	289.431							
S/DEPTH=.7	*****	94.6%							
S/DEPTH=.6	*****	277.410							
S/DEPTH=.5	*****	94.4%							
S/DEPTH=.4	*****	268.247							
S/DEPTH=.3	*****	94.2%							
S/DEPTH=.2	*****	261.600							
S/DEPTH=.1	*****	94.1%							
S/DEPTH=.0	*****	257.971							
S/DEPTH=.9	*****	94.0%							
S/DEPTH=.8	*****	256.702							
S/DEPTH=.7	*****	94.0%							
S/DEPTH=.6	*****	244.8%							
S/DEPTH=.5	*****	174.1%							
S/DEPTH=.4	*****	173.2%							
S/DEPTH=.3	*****	174.274							
S/DEPTH=.2	*****	89.6%							
S/DEPTH=.1	*****	298.334							
S/DEPTH=.0	*****	89.6%							
S/DEPTH=.9	*****	295.896							
S/DEPTH=.8	*****	177.361							
S/DEPTH=.7	*****	74.1%							
S/DEPTH=.6	*****	294.421							
S/DEPTH=.5	*****	178.104							
S/DEPTH=.4	*****	89.5%							
S/DEPTH=.3	*****	293.928							
S/DEPTH=.2	*****	89.5%							
S/DEPTH=.1	*****	244.8%							
S/DEPTH=.0	*****	174.3%							
S/DEPTH=.9	*****	21.399							
S/DEPTH=.8	*****	1.715							
S/DEPTH=.7	*****	1.858							
S/DEPTH=.6	*****	1.990							
S/DEPTH=.5	*****	2.108							
S/DEPTH=.4	*****	2.165							
S/DEPTH=.3	*****	2.165							
S/DEPTH=.2	*****	2.415							
S/DEPTH=.1	*****	2.445							
S/DEPTH=.0	*****	2.455							
S/DEPTH=.9	*****	140.6%							
S/DEPTH=.8	*****	167.6%							
S/DEPTH=.7	*****	157.4%							
S/DEPTH=.6	*****	29.614							
S/DEPTH=.5	*****	149.9%							
S/DEPTH=.4	*****	184							
S/DEPTH=.3	*****	188							
S/DEPTH=.2	*****	189							
S/DEPTH=.1	*****	189							
S/DEPTH=.0	*****	189							

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TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD....DEFINED IN EQUATION (25)

THETA ETA/HEIGHT=	0 904	10.0 44.7%	20.0 106.3%	30.0 228	50.0 31	75.0 1095	100.0 9.5%	130.0 298.6%	180.0 420.5%
SURFACE	1007.948	500.971	86.306	4.069	6.065	9.661	9.972	10.008	9.993
S/DEPTH=1.3	63.0%	27.9%	269.6%	*****	*****	*****	*****	*****	*****
S/DEPTH=1.2	100.0%	483.546							
S/DEPTH=1.1	55.8%	436.492							
S/DEPTH=1.0	749.126	23.8%							
S/DEPTH=0.9	50.2%	391.267	82.836	4.060					
S/DEPTH=0.8	601.184	22.9%	231.7%	*****	5.569	9.022	9.323	9.357	9.343
S/DEPTH=0.7	576.673	347.678	76.115	3.949	*****	*****	*****	*****	*****
S/DEPTH=0.6	51.8%	22.0%	224.2%	*****	4.877	8.012	8.287	8.318	8.305
S/DEPTH=0.5	503.539	305.538	68.880	3.770	*****	*****	*****	*****	*****
S/DEPTH=0.4	50.8%	21.3%	217.9%	*****	4.211	7.004	7.250	7.278	7.267
S/DEPTH=0.3	431.882	264.664	61.197	3.515	*****	5.999	6.214	6.238	6.229
S/DEPTH=0.2	49.6%	20.6%	212.6%	*****	3.567	*****	*****	*****	*****
S/DEPTH=0.1	363.920	224.881	53.133	3.183	*****	4.996	5.178	5.198	5.191
S/DEPTH=0.0	49.0%	20.0%	208.2%	*****	2.779	2.943	*****	*****	*****
S/DEPTH=0.9	298.972	186.020	44.748	2.779	*****	3.995	4.142	4.159	4.153
S/DEPTH=0.8	48.4%	19.5%	*****	*****	2.309	*****	*****	*****	*****
S/DEPTH=0.7	236.431	147.919	36.103	*****	*****	2.995	3.107	3.119	3.114
S/DEPTH=0.6	47.6%	19.1%	*****	*****	1.784	*****	*****	*****	*****
S/DEPTH=0.5	175.751	110.419	27.253	*****	*****	1.996	2.071	2.079	2.076
S/DEPTH=0.4	47.4%	18.6%	*****	*****	1.214	*****	*****	*****	*****
S/DEPTH=0.3	116.429	73.366	18.251	*****	*****	1.998	1.036	1.040	1.038
S/DEPTH=0.2	47.1%	16.6%	*****	*****	6.15	*****	*****	*****	*****
S/DEPTH=0.1	57.995	36.609	9.150	*****	*****	*****	*****	*****	*****
S/DEPTH=0.0	46.9%	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=0.9	1007.948	500.971	86.306	4.069	6.065	9.661	9.972	10.008	9.993
S/DEPTH=0.8	63.0%	27.9%	269.6%	*****	*****	*****	*****	*****	*****
S/DEPTH=0.7	100.0%	483.546							
S/DEPTH=0.6	55.8%	436.492							
S/DEPTH=0.5	749.126	23.8%							
S/DEPTH=0.4	50.2%	391.267	82.836	4.060					
S/DEPTH=0.3	601.184	22.9%	231.7%	*****	5.569	9.022	9.323	9.357	9.343
S/DEPTH=0.2	576.673	347.678	76.115	3.949	*****	*****	*****	*****	*****
S/DEPTH=0.1	51.8%	22.0%	224.2%	*****	4.877	8.012	8.287	8.318	8.305
S/DEPTH=0.0	503.539	305.538	68.880	3.770	*****	*****	*****	*****	*****
S/DEPTH=0.9	50.8%	21.3%	217.9%	*****	4.211	7.004	7.250	7.278	7.267
S/DEPTH=0.8	431.882	264.664	61.197	3.515	*****	5.999	6.214	6.238	6.229
S/DEPTH=0.7	49.6%	20.6%	212.6%	*****	3.567	*****	*****	*****	*****
S/DEPTH=0.6	363.920	224.881	53.133	3.183	*****	4.996	5.178	5.198	5.191
S/DEPTH=0.5	49.0%	20.0%	208.2%	*****	2.779	2.943	*****	*****	*****
S/DEPTH=0.4	298.972	186.020	44.748	2.779	*****	3.995	4.142	4.159	4.153
S/DEPTH=0.3	48.4%	19.5%	*****	*****	2.309	*****	*****	*****	*****
S/DEPTH=0.2	236.431	147.919	36.103	*****	*****	2.995	3.107	3.119	3.114
S/DEPTH=0.1	47.6%	19.1%	*****	*****	1.784	*****	*****	*****	*****
S/DEPTH=0.0	175.751	110.419	27.253	*****	*****	1.996	2.071	2.079	2.076
S/DEPTH=0.9	47.4%	18.6%	*****	*****	1.214	*****	*****	*****	*****
S/DEPTH=0.8	116.429	73.366	18.251	*****	*****	1.998	1.036	1.040	1.038
S/DEPTH=0.7	47.1%	16.6%	*****	*****	6.15	*****	*****	*****	*****
S/DEPTH=0.6	57.995	36.609	9.150	*****	*****	*****	*****	*****	*****
S/DEPTH=0.5	46.9%	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=0.4	1007.948	500.971	86.306	4.069	6.065	9.661	9.972	10.008	9.993
S/DEPTH=0.3	63.0%	27.9%	269.6%	*****	*****	*****	*****	*****	*****
S/DEPTH=0.2	100.0%	483.546							
S/DEPTH=0.1	55.8%	436.492							
S/DEPTH=0.0	749.126	23.8%							

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TABLE VI=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.904	.606	.228	.031	.079	.095	.096	.096	.096
	44.7%	18.8%	106.5%	*****	506.8%	236.5%	9.5%	298.6%	-420.5%
SURFACE	.000	407.060	339.432	170.728	26.219	2.084	.137	.052	.000
S/DEPTH=1.3	*****	95.4%	89.2%	68.3%	-219.8%	*****	*****	*****	*****
S/DEPTH=1.2	*****	389.645							
S/DEPTH=1.1	*****	95.2%	263.824	153.826	24.785	1.978	.134	.047	.000
S/DEPTH=1.0	*****	344.120	90.0%	72.7%	169.8%	*****	*****	*****	*****
S/DEPTH=.9	*****	95.0%	89.9%	73.0%	22.549	1.800	.127	.039	.000
S/DEPTH=.8	*****	309.260	243.223	138.092	22.549	*****	*****	*****	*****
S/DEPTH=.7	*****	302.348	89.8%	77.3%	163.4%	1.607	.116	.032	.000
S/DEPTH=.6	*****	194.745	211.222	121.836	20.134	*****	*****	*****	*****
S/DEPTH=.5	*****	94.4%	89.7%	73.6%	*****	1.402	.104	.027	.000
S/DEPTH=.4	*****	163.407	179.834	105.151	17.560	*****	*****	*****	*****
S/DEPTH=.3	*****	94.3%	89.7%	73.8%	*****	1.186	.089	.021	.000
S/DEPTH=.2	*****	133.737	148.991	88.116	14.848	*****	*****	*****	*****
S/DEPTH=.1	*****	94.2%	89.6%	73.9%	*****	.961	.073	.017	.000
S/DEPTH=.0	*****	105.419	118.615	70.805	12.019	*****	*****	*****	*****
	*****	94.1%	89.6%	71.1%	*****	.727	.056	.012	.000
	*****	78.160	88.621	53.282	9.097	*****	*****	*****	*****
	*****	94.0%	89.6%	74.2%	*****	.488	.037	.008	.000
	*****	51.680	58.917	33.604	6.104	*****	*****	*****	*****
	*****	94.0%	89.5%	71.827	*****	.245	.019	.004	.000
	*****	25.712	29.409	17.827	3.064	*****	*****	*****	*****
	*****	94.0%	89.5%	*****	*****	.000	.000	.000	.000
	*****	.000	.000	*****	*****	*****	*****	*****	*****

CASE 2=B

TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.904	.606	.228	.031	-.079	-.095	-.096	-.096	-.096
	44.7%	18.8%	=106.3%	*****	506.8%	236.5%	9.5%	=298.6%	=420.5%
SURFACE	762.851	324.913	44.897	1.550	3.059	44.664	44.801	44.817	44.810
	70.5%	33.3%	=333.1%	*****	*****	*****	*****	*****	*****
S/DEPTH=1.3	685.368								
	100.0%								
S/DEPTH=1.2	550.315	303.688							
	59.5%	26.6%							
S/DEPTH=1.1	444.285	249.560							
	57.3%	26.2%							
S/DEPTH=1.0	351.887	202.059	39.188	1.540					
	55.6%	24.9%	=252.4%	*****					
S/DEPTH=.9	274.403	160.637	35.888	1.436	2.595	44.069	44.196	44.211	44.204
	50.0%	23.7%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.8	209.640	124.806	26.662	1.284	2.006	44.211	44.315	44.327	44.322
	52.5%	22.7%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.7	155.871	94.141	20.904	1.093	1.506	44.455	44.538	44.547	44.543
	51.2%	21.7%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.6	111.669	66.274	15.665	.879	1.088	44.802	44.864	44.871	44.869
	50.1%	20.8%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.5	75.925	46.893	11.056	.657	.744	44.250	44.295	44.300	44.298
	49.1%	20.1%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.4	47.764	29.742	7.167	.446	.470	44.799	44.829	44.832	44.830
	48.3%	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.3	26.512	10.613	4.071	.262	.262	44.449	44.466	44.468	44.467
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.2	11.672	7.346	1.822	.120	.116	44.200	44.207	44.208	44.208
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.1	2.902	1.831	.457	.031	.029	44.050	44.052	44.052	44.052
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 2#B

TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THE TA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.904	.606	.228	.031	.079	.095	.096	.096	.096
	44.7%	18.8%	106.3%	*****	506.8%	236.5%	9.5%	298.6%	420.5%
SURFACE	.000	280.362	189.874	83.813	11.861	.937	.055	.029	.000
S/DEPTH=1.3	*****	96.0%	86.5%	62.1%	*****	*****	*****	*****	*****
S/DEPTH=1.2	*****	.000							
S/DEPTH=1.1	*****	259.150							
S/DEPTH=1.0	*****	95.7%							
S/DEPTH=.9	*****	206.762							
S/DEPTH=.8	*****	95.4%							
S/DEPTH=.7	*****	162.873							
S/DEPTH=.6	*****	90.2%	158.360	82.008					
S/DEPTH=.5	*****	95.2%	126.654	67.661	10.522	.839	.052	.024	.000
S/DEPTH=.4	*****	169.250	90.1%	72.3%	*****	*****	*****	*****	*****
S/DEPTH=.3	*****	95.0%	98.881	54.292	8.623	.688	.046	.017	.000
S/DEPTH=.2	*****	94.8%	90.0%	72.8%	*****	*****	*****	*****	*****
S/DEPTH=.1	*****	70.828	74.875	42.104	6.813	.543	.038	.012	.000
S/DEPTH=.0	*****	94.6%	89.9%	73.2%	*****	*****	*****	*****	*****
	*****	50.443	54.466	31.261	5.141	.410	.030	.008	.000
	*****	94.5%	89.8%	73.5%	*****	*****	*****	*****	*****
	*****	34.112	37.500	21.895	3.651	.291	.022	.006	.000
	*****	94.3%	89.7%	73.7%	*****	*****	*****	*****	*****
	*****	21.359	23.827	14.107	2.379	.190	.014	.003	.000
	*****	94.2%	89.6%	73.9%	*****	*****	*****	*****	*****
	*****	11.810	13.326	7.975	1.357	.108	.008	.002	.000
	*****	94.1%	89.5%	74.0%	*****	*****	*****	*****	*****
	*****	5.185	5.898	3.557	.609	.049	.004	.001	.000
	*****	1.287	1.471	.891	.153	.012	.001	.000	.000
	*****	94.0%	89.4%	74.1%	*****	*****	*****	*****	*****
	*****	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 2=B

TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD....DEFINED IN EQUATION (29)

THETA = ETA/HEIGHT=	10.0 .904 44.7	20.0 .606 18.8	30.0 .228 18.8	50.0 .031 *****	75.0 .079 506.6	100.0 .096 9.5	130.0 .096 208.6	180.0 .096 420.5
SURFACE	1.812	1.215	.455	.062	.158	.190	.192	.192
S/DEPTH=1.3	47.3	22.4	.98.7	*****	510.8	256.5	301.7	442.9
S/DEPTH=1.2	100.0							
S/DEPTH=1.1	44.1	1.210						
S/DEPTH=1.0	42.2	1.198						
S/DEPTH=.9	40.5	1.185	.480	.065				
S/DEPTH=.8	38.8	1.173	.505	.086	.156	.190	.192	.192
S/DEPTH=.7	37.3	1.162	.525	.104	.152	.189	.192	.192
S/DEPTH=.6	35.9	1.151	.542	.120	.149	.189	.192	.192
S/DEPTH=.5	34.7	1.141	.557	.133	.146	.189	.192	.192
S/DEPTH=.4	33.6	1.133	.568	.145	.144	.189	.192	.192
S/DEPTH=.3	32.7	1.126	.577	.154	.142	.188	.192	.192
S/DEPTH=.2	32.0	1.121	.584	.161	.141	.188	.192	.192
S/DEPTH=.1	31.5	1.117	.589	.166	.140	.188	.192	.192
S/DEPTH=.0	31.2	1.114	.592	.169	.139	.188	.192	.192
	31.2	1.113	.593	.170	.139	.188	.192	.192
	31.1	1.099	.49.9	.386.1	562.2	257.3	296.0	436.5

CASE 2-B

TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35) SURFACE	.000	.003	.005	.007	.008	.004	.002	.006	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35) SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36) SURFACE	.023	.021	.017	.011	.004	.019	.021	.004	.022
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37) SURFACE	.002	.001	.000	.000	.000	.000	.000	.000	.000

CASE 2-B

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.199 (= 11.4%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.211 (= 136.9%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.234 (= 114.8%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.446 (= 125.3%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.434 (= 128.6%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.073 (= 1.5%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.467 (= 114.6%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.613 (= 141.7%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.179 (= 173.3%)

CASE 2=B

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46)		
LINEAR	.004962	.000000
	STREAM FUNCTION	
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47)		
LINEAR	.015769	.000433
	STREAM FUNCTION	
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46)		
LINEAR	.007914	.000000
	STREAM FUNCTION	
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47)		
LINEAR	.022598	.002267
	STREAM FUNCTION	
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48)		
LINEAR	.197775	.332755
	STREAM FUNCTION	
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49)		
LINEAR	.005869	.144609
	STREAM FUNCTION	

CASE 2=C

19TH ORDER STREAM FUNCTION WAVE THEORY

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/b \cdot 28318) \cdot T^{**2}$
 DEFINITIONS
 H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .002925 DPT/LO = .005000
 H/DPT = .585097
 L/LO = .210547 PSI/(G*H*T) = -.000638

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) =	-.241738+01	X(2)/(H*T*G) =	-.108313+01
X(3)/(H*T*G) =	-.605744+02	X(4)/(H*T*G) =	-.360214+02
X(5)/(H*T*G) =	-.217465+02	X(6)/(H*T*G) =	-.131436+02
X(7)/(H*T*G) =	-.789114+03	X(8)/(H*T*G) =	-.469926+03
X(9)/(H*T*G) =	-.827679+03	X(10)/(H*T*G) =	-.161273+03
X(11)/(H*T*G) =	-.927108+04	X(12)/(H*T*G) =	-.526491+04
X(13)/(H*T*G) =	-.294232+04	X(14)/(H*T*G) =	-.162236+04
X(15)/(H*T*G) =	-.876138+05	X(16)/(H*T*G) =	-.467439+05
X(17)/(H*T*G) =	-.243012+05	X(18)/(H*T*G) =	-.126184+05
X(19)/(H*T*G) =	-.639932+06		

CASE 2=C

TABLE 1=DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.927	.470	.116	.014	.068	.072	.072	.073	.073
46.1%	-4.8%	-305.2%		*****	575.7%	279.0%	19.8%	427.5%	-589.4%
SURFACE	36.884	17.239	3.693	.607	2.217	2.344	2.346	2.357	2.355
8/DEPTH=1.5	51.2%	-2.8%	-357.6%	*****	619.8%	297.2%	31.6%	475.1%	-650.4%
100.0%									
S/DEPTH=1.4	33.415								
100.0%									
S/DEPTH=1.3	31.366								
42.6%									
S/DEPTH=1.2	29.587	17.094							
39.4%		2.3%							
S/DEPTH=1.1	28.044	16.891							
36.3%		-4.2%							
S/DEPTH=1.0	26.710	16.687	4.023						
33.3%		5.1%	-316.0%	.395	2.201	2.343	2.347	2.357	2.354
S/DEPTH=.9	25.959	16.486	4.452	*****	618.7%	296.1%	31.4%	100.0%	100.0%
30.5%		-6.1%	-274.8%	.186	2.176	2.342	2.348	2.356	2.353
S/DEPTH=.8	24.574	16.300	4.820	*****	623.1%	295.7%	31.0%	475.4%	651.0%
27.9%		-7.0%	-245.2%	.000	2.154	2.342	2.349	2.356	2.352
S/DEPTH=.7	23.738	16.127	5.132	*****	627.2%	295.5%	30.8%	474.5%	651.1%
25.6%		7.9%	-223.5%	.161	2.135	2.341	2.350	2.355	2.352
S/DEPTH=.6	23.036	15.973	5.393	*****	630.8%	294.9%	30.3%	473.4%	649.8%
23.5%		-6.7%	-207.2%	.298	2.119	2.340	2.350	2.355	2.351
S/DEPTH=.5	22.462	15.838	5.607	*****	634.0%	294.8%	30.0%	472.5%	648.6%
21.6%		9.4%	-195.0%	.411	2.105	2.340	2.350	2.355	2.351
S/DEPTH=.4	22.002	15.726	5.777	*****	636.6%	294.4%	29.8%	471.7%	647.6%
20.1%		-10.1%	-185.9%	.498	2.095	2.340	2.351	2.355	2.351
S/DEPTH=.3	21.651	15.638	5.906	*****	638.7%	294.2%	29.7%	471.1%	646.8%
18.9%		-10.6%	-179.3%	.560	2.087	2.339	2.351	2.355	2.351
S/DEPTH=.2	21.404	15.574	5.997	*****	640.3%	294.1%	29.6%	470.7%	646.3%
18.0%		-10.9%	-174.9%	.598	2.082	2.339	2.351	2.355	2.351
S/DEPTH=.1	21.237	15.536	6.051	*****	641.2%	294.0%	29.5%	470.5%	646.0%
17.5%		-11.1%	-172.3%	.610	2.081	2.339	2.351	2.355	2.350
S/DEPTH=.0	21.208	15.523	6.069	*****	641.5%	294.0%	29.5%	470.4%	645.8%
17.3%		-11.2%	-171.4%						

CASE 2=C

TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.927	.470	.116	.014	.068	.072	.072	.073	.073
	46.1%	4.8%	305.2%	*****	575.7%	279.0%	19.8%	427.5%	589.4%
SURFACE	.000	14.049	7.289	2.559	.240	.000	.007	.006	.000
	*****	95.0%	81.2%	22.0%	*****	*****	*****	*****	*****
S/DEPTH=1.5	.000								

S/DEPTH=1.4	.000								

S/DEPTH=1.3	.000								

S/DEPTH=1.2	.000								

S/DEPTH=1.1	.000								

S/DEPTH=1.0	.000								

S/DEPTH=.9	.000								

S/DEPTH=.8	.000								

S/DEPTH=.7	.000								

S/DEPTH=.6	.000								

S/DEPTH=.5	.000								

S/DEPTH=.4	.000								

S/DEPTH=.3	.000								

S/DEPTH=.2	.000								

S/DEPTH=.1	.000								

S/DEPTH=.0	.000								

CASE 2=C

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.927	.470	.116	.014	.068	.072	.072	.073	.073
	46.1%	4.8%	305.2%	*****	575.7%	279.0%	19.8%	427.5%	589.4%
SURFACE	.000	573.887	252.529	81.125	7.850	1.038	.865	.827	.000
S/DEPTH#1.5	*****	97.5%	88.8%	47.5%	*****	*****	*****	*****	*****
S/DEPTH#1.4	*****								
S/DEPTH#1.3	.000								
S/DEPTH#1.2	.000								
S/DEPTH#1.1	.000								
S/DEPTH#1.0	.000								
S/DEPTH# .9	.000	533.566	255.977	88.174	8.317	.803	.736	.701	.000
S/DEPTH# .8	.000	97.3%	89.1%	55.5%	*****	*****	*****	*****	.000
S/DEPTH# .7	.000	485.774	261.054	56.02	9.081	.472	.560	.525	.000
S/DEPTH# .6	.000	97.1%	89.4%	56.0%	*****	*****	*****	*****	.000
S/DEPTH# .5	.000	444.200	261.710	100.936	9.810	.219	.429	.395	.000
S/DEPTH# .4	.000	96.9%	89.4%	58.8%	*****	*****	*****	*****	.000
S/DEPTH# .3	.000	408.261	261.645	105.997	10.480	.026	.334	.298	.000
S/DEPTH# .2	.000	96.8%	89.5%	60.8%	*****	*****	*****	*****	.000
S/DEPTH# .1	.000	377.433	261.157	110.213	11.075	.121	.265	.227	.000
S/DEPTH# .0	.000	96.3%	89.5%	62.4%	*****	*****	*****	*****	.000
S/DEPTH# .4	.000	296.975	260.477	115.611	11.579	.231	.215	.176	.000
S/DEPTH# .3	.000	95.0%	89.5%	63.6%	*****	*****	*****	*****	.000
S/DEPTH# .2	.000	286.032	259.781	110.222	11.981	.310	.181	.140	.000
S/DEPTH# .1	.000	95.2%	89.4%	64.5%	*****	*****	*****	*****	.000
S/DEPTH# .0	.000	278.336	259.196	118.068	12.274	.364	.158	.116	.000
S/DEPTH# .1	.000	95.1%	89.4%	65.1%	*****	*****	*****	*****	.000
S/DEPTH# .0	.000	273.766	258.812	119.168	12.453	.395	.145	.103	.000
S/DEPTH# .0	.000	95.0%	89.4%	65.4%	*****	*****	*****	*****	.000
S/DEPTH# .0	.000	272.250	258.678	119.533	12.512	.405	.141	.098	.000
S/DEPTH# .0	.000	95.0%	89.4%	65.5%	*****	*****	*****	*****	.000

UNIT: DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

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TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

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TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

99

CASE 2=C

TABLE VII=DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.027	.470	.116	.014	.068	.072	.072	.073	.073
	46.1%	4.8%	305.2%	*****	575.7%	279.0%	19.8%	427.5%	589.4%
SURFACE	976.518	220.288	14.172	.061	-2.132	-2.514	-2.530	-2.544	-2.537
S/DEPTH=1.5	73.0%	15.5%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.4	100.0%								
S/DEPTH=1.3	717.421								
S/DEPTH=1.2	100.0%								
S/DEPTH=1.1	575.839								
S/DEPTH=1.0	54.1%								
S/DEPTH=0.9	459.772	192.924							
S/DEPTH=0.8	50.7%	14.0%							
S/DEPTH=0.7	364.306	199.711							
S/DEPTH=0.6	47.9%	15.3%							
S/DEPTH=0.5	285.626	130.109	13.127						
S/DEPTH=0.4	45.2%	10.6%	*****	.039	1.858	2.220	2.235	2.247	2.240
S/DEPTH=0.3	220.752	103.967	11.419	*****	*****	*****	*****	*****	*****
S/DEPTH=0.2	42.8%	17.8%	*****	.031	1.451	1.753	1.767	1.775	1.769
S/DEPTH=0.1	167.351	81.119	9.590	*****	*****	*****	*****	*****	*****
S/DEPTH=0.0	40.5%	19.0%	7.731	.030	1.099	1.342	1.353	1.359	1.354
S/DEPTH=0.9	123.592	61.401	*****	.030	1.099	1.342	1.353	1.359	1.354
S/DEPTH=0.8	38.5%	20.1%	*****	.030	1.099	1.342	1.353	1.359	1.354
S/DEPTH=0.7	36.7%	44.656	5.930	.030	1.099	1.342	1.353	1.359	1.354
S/DEPTH=0.6	35.1%	30.741	4.266	.027	.800	.986	.994	.998	.995
S/DEPTH=0.5	37.337	19.532	2.808	.021	.551	.684	.691	.693	.691
S/DEPTH=0.4	20.664	10.924	1.614	.014	.351	.438	.442	.444	.442
S/DEPTH=0.3	9.079	4.835	.728	.007	.196	.246	.249	.249	.249
S/DEPTH=0.2	2.254	1.206	.184	.002	.087	.109	.111	.111	.110
S/DEPTH=0.1	.000	.000	.000	.000	.022	.027	.028	.028	.028
S/DEPTH=0.0	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 2=C

TABLE VIII=DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.927	.470	.116	.014	.068	.072	.072	.073	.073
	46.1%	305.2%	*****	575.7%	279.0%	19.8%	*****	427.5%	589.4%
SURFACE	.000	336.154	147.958	49.507	4.627	.100	.201	.184	.000
S/DEPTH=1.5	*****	96.6%	84.7%	33.5%	*****	*****	*****	*****	*****
S/DEPTH=1.4	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.3	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.2	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.1	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.0	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.9	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.8	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.7	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.6	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.5	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.4	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.3	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.2	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.1	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 2=C

TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD....DEFINED IN EQUATION (29)

THETA ETA/HEIGHT=	0 .927 46.1%	10.0 .470 305.12%	30.0 .014 *****	50.0 575.7%	75.0 279.0%	100.0 19.8%	130.0 427.5%	180.0 589.4%
SURFACE	1.854	.940	.232	.029	.144	.145	.145	.145
S/DEPTH=1.5	49.7%	2.1%	.282.9%	*****	319.0%	23.9%	.433.8%	.633.9%
S/DEPTH=1.4	100.0%							
S/DEPTH=1.3	1.735							
S/DEPTH=1.2	100.0%							
S/DEPTH=1.1	1.659							
S/DEPTH=1.0	43.9%							
S/DEPTH=.9	1.590							
S/DEPTH=.8	41.6%							
S/DEPTH=.7	1.528							
S/DEPTH=.6	39.4%							
S/DEPTH=.5	1.473							
S/DEPTH=.4	37.3%							
S/DEPTH=.3	1.424							
S/DEPTH=.2	35.3%							
S/DEPTH=.1	1.381							
S/DEPTH=.0	33.4%							
S/DEPTH=.9	1.344							
S/DEPTH=.8	31.6%							
S/DEPTH=.7	1.312							
S/DEPTH=.6	30.1%							
S/DEPTH=.5	1.286							
S/DEPTH=.4	28.8%							
S/DEPTH=.3	1.264							
S/DEPTH=.2	27.6%							
S/DEPTH=.1	1.248							
S/DEPTH=.0	26.8%							
S/DEPTH=.9	1.236							
S/DEPTH=.8	26.1%							
S/DEPTH=.7	1.229							
S/DEPTH=.6	25.7%							
S/DEPTH=.5	1.227							
S/DEPTH=.4	25.6%							
S/DEPTH=.3	1.218							
S/DEPTH=.2	24.6%							
S/DEPTH=.1	1.204							
S/DEPTH=.0	23.4%							
S/DEPTH=.9	1.192							
S/DEPTH=.8	22.4%							
S/DEPTH=.7	1.180							
S/DEPTH=.6	21.4%							
S/DEPTH=.5	1.168							
S/DEPTH=.4	20.8%							
S/DEPTH=.3	1.154							
S/DEPTH=.2	20.0%							
S/DEPTH=.1	1.140							
S/DEPTH=.0	19.6%							
S/DEPTH=.9	1.128							
S/DEPTH=.8	19.2%							
S/DEPTH=.7	1.116							
S/DEPTH=.6	18.6%							
S/DEPTH=.5	1.104							
S/DEPTH=.4	18.0%							
S/DEPTH=.3	1.092							
S/DEPTH=.2	17.6%							
S/DEPTH=.1	1.080							
S/DEPTH=.0	17.2%							
S/DEPTH=.9	1.068							
S/DEPTH=.8	16.6%							
S/DEPTH=.7	1.056							
S/DEPTH=.6	16.0%							
S/DEPTH=.5	1.044							
S/DEPTH=.4	15.6%							
S/DEPTH=.3	1.032							
S/DEPTH=.2	15.0%							
S/DEPTH=.1	1.020							
S/DEPTH=.0	14.8%							
S/DEPTH=.9	1.008							
S/DEPTH=.8	14.4%							
S/DEPTH=.7	1.000							
S/DEPTH=.6	14.0%							
S/DEPTH=.5	1.000							
S/DEPTH=.4	13.6%							
S/DEPTH=.3	1.000							
S/DEPTH=.2	13.2%							
S/DEPTH=.1	1.000							
S/DEPTH=.0	13.0%							
S/DEPTH=.9	1.000							
S/DEPTH=.8	12.8%							
S/DEPTH=.7	1.000							
S/DEPTH=.6	12.6%							
S/DEPTH=.5	1.000							
S/DEPTH=.4	12.4%							
S/DEPTH=.3	1.000							
S/DEPTH=.2	12.2%							
S/DEPTH=.1	1.000							
S/DEPTH=.0	12.0%							
S/DEPTH=.9	1.000							
S/DEPTH=.8	11.8%							
S/DEPTH=.7	1.000							
S/DEPTH=.6	11.6%							
S/DEPTH=.5	1.000							
S/DEPTH=.4	11.4%							
S/DEPTH=.3	1.000							
S/DEPTH=.2	11.2%							
S/DEPTH=.1	1.000							
S/DEPTH=.0	11.0%							
S/DEPTH=.9	1.000							
S/DEPTH=.8	10.8%							
S/DEPTH=.7	1.000							
S/DEPTH=.6	10.6%							
S/DEPTH=.5	1.000							
S/DEPTH=.4	10.4%							
S/DEPTH=.3	1.000							
S/DEPTH=.2	10.2%							
S/DEPTH=.1	1.000							
S/DEPTH=.0	10.0%							
S/DEPTH=.9	1.000							
S/DEPTH=.8	9.8%							
S/DEPTH=.7	1.000							
S/DEPTH=.6	9.6%							
S/DEPTH=.5	1.000							
S/DEPTH=.4	9.4%							
S/DEPTH=.3	1.000							
S/DEPTH=.2	9.2%							
S/DEPTH=.1	1.000							
S/DEPTH=.0	9.0%							
S/DEPTH=.9	1.000							
S/DEPTH=.8	8.8%							
S/DEPTH=.7	1.000							
S/DEPTH=.6	8.6%							
S/DEPTH=.5	1.000							
S/DEPTH=.4	8.4%							
S/DEPTH=.3	1.000							
S/DEPTH=.2	8.2%							
S/DEPTH=.1	1.000							
S/DEPTH=.0	8.0%							
S/DEPTH=.9	1.000							
S/DEPTH=.8	7.8%							
S/DEPTH=.7	1.000							
S/DEPTH=.6	7.6%							
S/DEPTH=.5	1.000							
S/DEPTH=.4	7.4%							
S/DEPTH=.3	1.000							
S/DEPTH=.2	7.2%							
S/DEPTH=.1	1.000							
S/DEPTH=.0	7.0%							
S/DEPTH=.9	1.000							
S/DEPTH=.8	6.8%							
S/DEPTH=.7	1.000							
S/DEPTH=.6	6.6%							
S/DEPTH=.5	1.000							
S/DEPTH=.4	6.4%							
S/DEPTH=.3	1.000							
S/DEPTH=.2	6.2%							
S/DEPTH=.1	1.000							
S/DEPTH=.0	6.0%							
S/DEPTH=.9	1.000							
S/DEPTH=.8	5.8%							
S/DEPTH=.7	1.000							
S/DEPTH=.6	5.6%							
S/DEPTH=.5	1.000							
S/DEPTH=.4	5.4%							
S/DEPTH=.3	1.000							
S/DEPTH=.2	5.2%							
S/DEPTH=.1	1.000							
S/DEPTH=.0	5.0%							
S/DEPTH=.9	1.000							
S/DEPTH=.8	4.8%							
S/DEPTH=.7	1.000							
S/DEPTH=.6	4.6%							
S/DEPTH=.5	1.000							
S/DEPTH=.4	4.4%							
S/DEPTH=.3	1.000							
S/DEPTH=.2	4.2%							
S/DEPTH=.1	1.000							
S/DEPTH=.0	4.0%							
S/DEPTH=.9	1.000							
S/DEPTH=.8	3.8%							
S/DEPTH=.7	1.000							
S/DEPTH=.6	3.6%							
S/DEPTH=.5	1.000							
S/DEPTH=.4	3.4%							
S/DEPTH=.3	1.000							
S/DEPTH=.2	3.2%							
S/DEPTH=.1	1.000							
S/DEPTH=.0	3.0%							
S/DEPTH=.9	1.000							
S/DEPTH=.8	2.8%							
S/DEPTH=.7	1.000							
S/DEPTH=.6	2.6%							
S/DEPTH=.5	1.000							
S/DEPTH=.4	2.4%							
S/DEPTH=.3	1.000							
S/DEPTH=.2	2.2%							
S/DEPTH=.1	1.000							
S/DEPTH=.0	2.0%							
S/DEPTH=.9	1.000							
S/DEPTH=.8	1.8%							
S/DEPTH=.7	1.000							
S/DEPTH=.6	1.6%							
S/DEPTH=.5	1.000							
S/DEPTH=.4	1.4%							
S/DEPTH=.3	1.000							
S/DEPTH=.2	1.2%							
S/DEPTH=.1	1.000							
S/DEPTH=.0	1.0%							
S/DEPTH=.9	1.000							
S/DEPTH=.8	.8%							
S/DEPTH=.7	1.000							
S/DEPTH=.6	.6%							
S/DEPTH=.5	1.000							
S/DEPTH=.4	.4%							
S/DEPTH=.3	1.000							
S/DEPTH=.2	.2%							
S/DEPTH=.1	1.000							
S/DEPTH=.0	.0%							

CASE 2-C

TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.007	.014	.018	.019	.008	.005	.012	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.034	.032	.026	.018	.005	.029	.032	.005	.033
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.001	.000	.000	.000	.000	.000	.000	.000	.000

CASE 2=C

TABLE XI=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.211 (=16.2%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.159 (=214.6%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.185 (=172.4%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.344 (=191.9%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.335 (=196.7%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.972 (=1.7%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.368 (=172.4%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.461 (=221.1%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.127 (=285.9%)

CASE 2°C

TABLE XI(CONT)-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10)	DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.011678	STREAM FUNCTION	.000000
(11)	DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.023753	STREAM FUNCTION	.000230
(12)	DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.019707	STREAM FUNCTION	.000000
(13)	DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.034261	STREAM FUNCTION	.000631
(14)	DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.298482	STREAM FUNCTION	.512497
(15)	DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.006378	STREAM FUNCTION	.256664

CASE 2-D

19TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .003884 DPT/LO = .005000

H/DPT = .776719

L/LO = .222852 PSI/(G*H*T) = -.000632

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) =	-.195975E+01	X(2)/(H*T*G) =	-.899338E+02
X(3)/(H*T*G) =	-.520998E+02	X(4)/(H*T*G) =	-.324648E+02
X(5)/(H*T*G) =	-.206557E+02	X(6)/(H*T*G) =	-.132575E+02
X(7)/(H*T*G) =	-.847207E+03	X(8)/(H*T*G) =	-.540352E+03
X(9)/(H*T*G) =	-.341193E+03	X(10)/(H*T*G) =	-.214955E+03
X(11)/(H*T*G) =	-.133574E+03	X(12)/(H*T*G) =	-.829726E+04
X(13)/(H*T*G) =	-.506638E+04	X(14)/(H*T*G) =	-.311288E+04
X(15)/(H*T*G) =	-.187359E+04	X(16)/(H*T*G) =	-.115125E+04
X(17)/(H*T*G) =	-.692999E+05	X(18)/(H*T*G) =	-.440772E+05
X(19)/(H*T*G) =	-.276700E+05		

TABLE 1-DIMENSIONLESS									
HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)									
THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.944	.341	.056	.027	.055	.056	.056	.056	.056
	47.0%	44.5%	739.5%	*****	686.7%	331.0%	55.0%	580.1%	791.0%
SURFACE	40.892	12.677	1.704	0.989	0.1792	0.1776	0.1767	0.1803	0.1793
S/DEPTH=1.7	55.8%	40.13%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.6	100.0%								
S/DEPTH=1.5	36.293								
S/DEPTH=1.4	100.0%								
S/DEPTH=1.3	33.403								
S/DEPTH=1.2	100.0%								
S/DEPTH=1.1	41.6%								
S/DEPTH=1.0	28.774								
S/DEPTH=.9	37.4%								
S/DEPTH=.8	26.930								
S/DEPTH=.7	33.4%								
S/DEPTH=.6	25.342								
S/DEPTH=.5	29.5%								
S/DEPTH=.4	12.738								
S/DEPTH=.3	38.6%								
S/DEPTH=.2	12.786								
S/DEPTH=.1	37.6%								
S/DEPTH=.0	12.794	1.892							
S/DEPTH=.9	37.1%	2.286	0.804	0.1778	0.1777	0.1770	0.1801	0.1790	
S/DEPTH=.8	36.9%	0.30.0%	0.719	0.1757	0.1779	0.1774	0.1798	0.1787	
S/DEPTH=.7	36.9%	0.33.0%	0.590	0.1740	0.1781	0.1777	0.1796	0.1784	
S/DEPTH=.6	37.1%	0.467.8%	0.477	0.1726	0.1782	0.1780	0.1795	0.1782	
S/DEPTH=.5	37.4%	0.422.0%	0.381	0.1714	0.1783	0.1782	0.1794	0.1781	
S/DEPTH=.4	37.7%	0.389.2%	0.302	0.1705	0.1783	0.1783	0.1793	0.1780	
S/DEPTH=.3	38.0%	0.365.0%	0.241	0.1698	0.1784	0.1784	0.1792	0.1779	
S/DEPTH=.2	38.3%	0.348.9%	0.197	0.1694	0.1784	0.1784	0.1792	0.1779	
S/DEPTH=.1	38.5%	0.337.8%	0.170	0.1691	0.1784	0.1785	0.1792	0.1779	
S/DEPTH=.0	12.457	3.819	0.161	0.1690	0.1784	0.1785	0.1792	0.1779	
S/DEPTH=.9	38.6%	3.31.5%	0.161	0.1690	0.1784	0.1785	0.1792	0.1779	
S/DEPTH=.8	38.7%	3.837	0.161	0.1690	0.1784	0.1785	0.1792	0.1779	
S/DEPTH=.7	38.7%	3.829.9%	0.161	0.1690	0.1784	0.1785	0.1792	0.1779	

CASE 2=0

TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA ETA/HEIGHT	0 .944 47.0%	10.0 .341 44.5%	20.0 .056 739.5%	30.0 .027 *****	50.0 .055 686.7%	75.0 .056 331.0%	100.0 .056 55.0%	130.0 .056 580.1%	180.0 .056 791.9%
SURFACE	.000	13.386	5.070	1.529	.120	-.039	.028	.026	.000
S/DEPTH=1.7	*****	94.3%	71.0%	-37.7%	*****	*****	*****	*****	*****
S/DEPTH=1.6	*****	.000							
S/DEPTH=1.5	*****	.000							
S/DEPTH=1.4	*****	.000							
S/DEPTH=1.3	*****	.000							
S/DEPTH=1.2	*****	.000							
S/DEPTH=1.1	*****	.000							
S/DEPTH=1.0	*****	.000							
S/DEPTH=.9	*****	.000							
S/DEPTH=.8	*****	.000							
S/DEPTH=.7	*****	.000							
S/DEPTH=.6	*****	.000							
S/DEPTH=.5	*****	.000							
S/DEPTH=.4	*****	.000							
S/DEPTH=.3	*****	.000							
S/DEPTH=.2	*****	.000							
S/DEPTH=.1	*****	.000							
S/DEPTH=.0	*****	.000							

CASE 2=D

TABLE II=DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
FTA/HEIGHT=	.944	.341	.056	.027	.055	.056	.056	.056	.056
	47.0%	44.5%	739.5%	*****	686.7%	331.0%	55.0%	580.1%	791.9%
SURFACE	.000	574.765	161.964	52.365	5.705	5.204	3.676	3.282	.000
	*****	97.6%	84.5%	27.0%	*****	*****	*****	*****	*****
S/DEPTH=1.7	.000								

S/DEPTH=1.6	.000								

S/DEPTH=1.5	.000								

S/DEPTH=1.4	.000								

S/DEPTH=1.3	.000								

S/DEPTH=1.2	.000	540.488							
	*****	97.7%							
S/DEPTH=1.1	.000	492.622							
	*****	97.5%							
S/DEPTH=1.0	.000	450.639	168.303						
	*****	97.3%	85.4%						
S/DEPTH=.9	.000	414.110	180.368	55.927	5.600	4.445	3.146	2.817	.000
	*****	97.1%	86.4%	33.2%	*****	*****	*****	*****	*****
S/DEPTH=.8	.000	382.615	189.529	60.297	5.514	3.360	2.393	2.151	.000
	*****	96.9%	87.1%	36.3%	*****	*****	*****	*****	*****
S/DEPTH=.7	.000	355.765	196.407	64.360	5.518	2.537	1.827	1.647	.000
	*****	96.6%	87.6%	44.4%	*****	*****	*****	*****	*****
S/DEPTH=.6	.000	333.209	201.503	68.014	5.577	1.917	1.404	1.269	.000
	*****	96.4%	88.0%	45.6%	*****	*****	*****	*****	*****
S/DEPTH=.5	.000	314.641	205.219	71.189	5.665	1.453	1.091	.987	.000
	*****	96.2%	88.2%	48.2%	*****	*****	*****	*****	*****
S/DEPTH=.4	.000	299.802	207.869	73.835	5.763	1.113	.862	.781	.000
	*****	96.0%	88.4%	50.2%	*****	*****	*****	*****	*****
S/DEPTH=.3	.000	288.478	209.696	75.919	5.854	.871	.701	.635	.000
	*****	95.9%	88.5%	51.6%	*****	*****	*****	*****	*****
S/DEPTH=.2	.000	280.506	210.878	77.421	5.927	.710	.594	.537	.000
	*****	95.8%	88.6%	52.6%	*****	*****	*****	*****	*****
S/DEPTH=.1	.000	275.770	211.539	78.326	5.974	.618	.535	.482	.000
	*****	95.7%	88.6%	53.2%	*****	*****	*****	*****	*****
S/DEPTH=.0	.000	274.199	211.752	78.628	5.990	.588	.513	.464	.000
	*****	95.7%	88.7%	53.4%	*****	*****	*****	*****	*****

CASE 2=D

TABLE 1=V=DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)									
THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	944	.341	.056	.027	.055	.056	.056	.056	.056
	47.0%	44.5%	739.5%	*****	686.7%	331.0%	-55.0%	-580.1%	-791.9%
SURFACE	215.114	208.345	76.500	11.699	1.386	2.536	1.606	2.272	*****
S/DEPTH=1.7	96.6%	107.5%	107.0%	116.2%	*****	*****	*****	*****	*****
S/DEPTH=1.6	499.564	100.0%	510.170	100.0%	100.0%	130.0	180.0	*****	*****
S/DEPTH=1.5	100.0%	498.772	100.0%	100.0%	100.0%	100.0	130.0	*****	*****
S/DEPTH=1.4	473.910	100.0%	100.0%	100.0%	100.0%	100.0	130.0	*****	*****
S/DEPTH=1.3	96.5%	441.243	96.5%	96.5%	96.5%	96.5%	96.5%	96.5%	96.5%
S/DEPTH=1.2	176.734	107.9%	107.9%	107.9%	107.9%	107.9%	107.9%	107.9%	107.9%
S/DEPTH=1.1	366.006	129.086	129.086	129.086	129.086	129.086	129.086	129.086	129.086
S/DEPTH=1.0	327.315	92.855	92.855	92.855	92.855	92.855	92.855	92.855	92.855
S/DEPTH= .9	289.299	112.6%	112.6%	112.6%	112.6%	112.6%	112.6%	112.6%	112.6%
S/DEPTH= .8	252.441	105.6%	105.6%	105.6%	105.6%	105.6%	105.6%	105.6%	105.6%
S/DEPTH= .7	216.961	120.8%	120.8%	120.8%	120.8%	120.8%	120.8%	120.8%	120.8%
S/DEPTH= .6	182.896	106.1%	106.1%	106.1%	106.1%	106.1%	106.1%	106.1%	106.1%
S/DEPTH= .5	150.171	111.894	111.894	111.894	111.894	111.894	111.894	111.894	111.894
S/DEPTH= .4	118.633	106.3%	106.3%	106.3%	106.3%	106.3%	106.3%	106.3%	106.3%
S/DEPTH= .3	86.063	106.4%	106.4%	106.4%	106.4%	106.4%	106.4%	106.4%	106.4%
S/DEPTH= .2	58.292	106.4%	106.4%	106.4%	106.4%	106.4%	106.4%	106.4%	106.4%
S/DEPTH= .1	29.017	106.4%	106.4%	106.4%	106.4%	106.4%	106.4%	106.4%	106.4%
S/DEPTH= .0	9.8%	106.4%	106.4%	106.4%	106.4%	106.4%	106.4%	106.4%	106.4%

TABLE 1. DIMENSIONLESS DRAG FORCE COMPONENT FIELD DEFINED IN EQUATION (25)

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CASE 2=D

TABLE VI=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.944	.341	.056	.027	.055	.056	.056	.056	.056
	47.0%	44.5%	75.0%	*****	686.7%	331.0%	55.0%	580.1%	791.9%
SURFACE	.000	465.163	207.600	67.962	5.482	-1.771	1.309	1.178	.000
	*****	96.4%	84.0%	26.8%	*****	*****	*****	*****	*****
S/DEPTH=1.7	.000								

S/DEPTH=1.6	.000								

S/DEPTH=1.5	.000								

S/DEPTH=1.4	.000								

S/DEPTH=1.3	.000								

S/DEPTH=1.2	.000	429.126							
	*****	96.6%							
S/DEPTH=1.1	.000	377.521							
	*****	96.5%							
S/DEPTH=1.0	.000	330.405	200.418						
	*****	96.4%	87.9%						
S/DEPTH=.9	.000	287.211	182.957	63.701	5.158	-1.499	1.116	1.007	.000
	*****	96.3%	88.1%	47.8%	*****	*****	*****	*****	*****
S/DEPTH=.8	.000	247.415	164.441	57.888	4.603	-1.111	.841	.760	.000
	*****	96.1%	88.3%	49.0%	*****	*****	*****	*****	*****
S/DEPTH=.7	.000	210.533	145.128	51.652	4.052	-.819	.631	.511	.000
	*****	96.0%	88.4%	50.1%	*****	*****	*****	*****	*****
S/DEPTH=.6	.000	176.119	125.219	45.030	3.497	-.597	.471	.426	.000
	*****	95.9%	88.5%	51.0%	*****	*****	*****	*****	*****
S/DEPTH=.5	.000	143.759	104.873	38.065	2.935	-.430	.347	.314	.000
	*****	95.9%	88.5%	51.7%	*****	*****	*****	*****	*****
S/DEPTH=.4	.000	113.067	84.211	30.809	2.364	-.303	.250	.226	.000
	*****	95.8%	88.6%	52.3%	*****	*****	*****	*****	*****
S/DEPTH=.3	.000	83.681	63.326	23.317	1.783	-.204	.172	.156	.000
	*****	95.7%	88.6%	52.8%	*****	*****	*****	*****	*****
S/DEPTH=.2	.000	55.259	42.293	15.645	1.194	-.126	.108	.098	.000
	*****	95.7%	88.6%	*****	*****	*****	*****	*****	*****
S/DEPTH=.1	.000	27.472	21.168	7.853	.598	-.060	.052	.047	.000
	*****	95.7%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 2-D

TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

[illegible]

CASE 2=D

TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.944	.341	.056	.027	.055	.056	.056	.056	.056
	47.0%	44.5%	73.9.5%	*****	686.7%	331.0%	55.0%	580.1%	791.9%
SURFACE	.000	332.894	104.336	31.101	2.582	-1.165	.842	.757	.000
	*****	96.5%	78.1%	7.6%	*****	*****	*****	*****	*****
S/DEPTH#1.7	.000								

S/DEPTH#1.6	.000								

S/DEPTH#1.5	.000								

S/DEPTH#1.4	.000								

S/DEPTH#1.3	.000								

S/DEPTH#1.2	.000	288.472							
	*****	97.0%							
S/DEPTH#1.1	.000	229.087							
	*****	96.8%							
S/DEPTH#1.0	.000	179.580	96.999						
	*****	96.7%	87.5%	27.101	2.281	.913	.664	.598	.000
S/DEPTH# .9	.000	138.515	80.422	44.7%	*****	*****	*****	*****	*****
	*****	96.5%	87.8%	22.164	1.809	.582	.429	.387	.000
S/DEPTH# .8	.000	104.663	64.691	46.6%	1.396	.360	.271	.245	.000
	*****	96.3%	88.0%	17.490	1.036	.217	.167	.151	.000
S/DEPTH# .7	.000	76.979	50.211	13.199	1.036	.217	.167	.151	.000
	*****	96.2%	88.2%	9.361	.727	.125	.098	.089	.000
S/DEPTH# .6	.000	54.591	37.275	6.098	.470	.067	.055	.049	.000
	*****	96.1%	88.3%	3.477	.266	.033	.027	.025	.000
S/DEPTH# .5	.000	36.777	26.088	1.560	.119	.013	.011	.010	.000
	*****	96.0%	88.5%	*****	*****	*****	*****	*****	*****
S/DEPTH# .4	.000	22.953	16.792	*****	*****	*****	*****	*****	*****
	*****	95.9%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH# .3	.000	12.659	9.484	*****	*****	*****	*****	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH# .2	.000	5.547	4.226	*****	*****	*****	*****	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH# .1	.000	1.375	1.058	*****	*****	*****	*****	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH# .0	.000	.000	.000	*****	*****	*****	*****	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 2=0

TABLE 1X=DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.944	.341	.056	.027	.055	.056	.056	.056	.056
	47.0%	.04.5%	.739.5%	*****	686.7%	331.0%	.55.0%	.580.1%	.791.9%
SURFACE	1.881	.703	.117	.058	.115	.114	.114	.116	.115
S/DEPTH=1.7	51.7%	.27.8%	.643.1%	*****	668.6%	393.4%	21.8%	.570.7%	.841.8%
	100.0%								
S/DEPTH=1.6	1.859								
	100.0%								
S/DEPTH=1.5	1.774								
	100.0%								
S/DEPTH=1.4	1.694								
	100.0%								
S/DEPTH=1.3	1.616								
	43.8%								
S/DEPTH=1.2	1.543								
	41.3%								
S/DEPTH=1.1	1.476	.723							
	38.8%	.23.7%							
S/DEPTH=1.0	1.414	.19.4%							
	36.3%	.131							
S/DEPTH=.9	1.359	.16.4%	.557.8%	.049	.114	.114	.114	.116	.115
	33.8%	.160	*****	.004	.671.1%	.393.9%	22.4%	100.0%	100.0%
S/DEPTH=.8	1.310	.14.3%	.435.9%	.039	.113	.114	.114	.116	.115
	31.5%	.186	*****	.039	.676.2%	.393.8%	23.9%	.572.6%	100.0%
S/DEPTH=.7	1.267	.12.8%	.361.1%	.029	.112	.115	.114	.116	.115
	29.3%	.208	*****	.029	.684.2%	.393.8%	25.2%	.573.4%	.847.0%
S/DEPTH=.6	1.230	.11.8%	.311.5%	.021	.111	.115	.114	.116	.115
	27.3%	.227	*****	.021	.689.1%	.393.8%	26.3%	.572.0%	.847.8%
S/DEPTH=.5	1.198	.11.1%	.277.0%	.014	.110	.115	.115	.115	.115
	25.4%	.243	*****	.014	.693.8%	.393.8%	27.2%	.570.7%	.846.5%
S/DEPTH=.4	1.172	.10.6%	.252.4%	.008	.109	.115	.115	.115	.114
	23.8%	.255	*****	.008	.696.5%	.393.9%	28.0%	.569.6%	.845.3%
S/DEPTH=.3	1.150	.10.3%	.234.9%	.004	.109	.115	.115	.115	.114
	22.5%	.265	*****	.004	.699.0%	.394.0%	28.6%	.568.8%	.844.4%
S/DEPTH=.2	1.134	.10.1%	.222.5%	.000	.108	.115	.115	.115	.114
	21.4%	.271	*****	.000	.700.8%	.394.0%	29.0%	.568.2%	.843.7%
S/DEPTH=.1	1.122	.10.0%	.214.3%	.002	.108	.115	.115	.115	.114
	20.7%	.275	*****	.002	.701.8%	.394.0%	29.2%	.567.8%	.843.8%
S/DEPTH=.0	1.115	.09.9%	.209.6%	.002	.108	.115	.115	.115	.114
	20.2%	.277	*****	.002	.702.2%	.394.1%	29.3%	.567.7%	.843.1%

CASE 2=0

TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.015	.028	.036	.036	.015	.009	.020	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.046	.043	.035	.024	.007	.038	.042	.006	.043
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.003	.011	.002	.002	.003	.001	.001	.002	.002

CASE 2=D

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

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(1) DIMENSIONLESS WAVE LENGTH
    DEFINED IN EQUATION (37)
    .523 ( =20.8X)

(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY
    DEFINED IN EQUATION (38)
    .117 (=327.1X)

(3) DIMENSIONLESS AVERAGE KINETIC ENERGY
    DEFINED IN EQUATION (39)
    .146 (=245.8X)

(4) DIMENSIONLESS TOTAL AVERAGE ENERGY
    DEFINED IN EQUATION (40)
    .263 (=281.9X)

(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX
    DEFINED IN EQUATION (41)
    .260 (=283.0X)

(6) DIMENSIONLESS GROUP VELOCITY
    DEFINED IN EQUATION (42)
    .986 (=3X)

(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM
    DEFINED IN EQUATION (43)
    .289 (=246.9X)

(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION
    DEFINED IN EQUATION (44)
    .354 (=318.8X)

(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION
    DEFINED IN EQUATION (45)
    .094 (=417.6X)

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CASE 2=D

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.021803	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.031614	STREAM FUNCTION	.004596
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.038598	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.045883	STREAM FUNCTION	.020922
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.597824	STREAM FUNCTION	.712623
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.010316	STREAM FUNCTION	.302336

CASE 3=A

12TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2$
H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
DPT = WATER DEPTH L = WAVE LENGTH
PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .001948 DPT/LO = .010000
H/DPT = .194817
L/LO = .259570 PSI/(G*H*T) = -.000724

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.540816*01 X(2)/(H*T*G) = -.162432*01
X(3)/(H*T*G) = -.525880*02 X(4)/(H*T*G) = -.167286*02
X(5)/(H*T*G) = -.516234*03 X(6)/(H*T*G) = -.153688*03
X(7)/(H*T*G) = -.438752*04 X(8)/(H*T*G) = -.118805*04
X(9)/(H*T*G) = -.300094*05 X(10)/(H*T*G) = -.682088*06
X(11)/(H*T*G) = -.126602*06 X(12)/(H*T*G) = -.116440*07

CASE 3=A

TABLE 1 DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	37.4%	.799	.723	.538	.329	.025	.183	.199	.201
		31.9%	12.6%	12.6%	.31.5%	*****	52.7%	.92.2%	-149.0%
SURFACE	20.810	18.708	13.712	8.206	.457	-3.417	-4.545	-4.917	-4.958
S/DEPTH#1.1	38.8%	12.9%	1.7%	-34.5%	*****	196.1%	51.7%	-96.3%	-153.9%
S/DEPTH#1.0	19.834	18.033	13.534	8.260	.467	-3.358	-4.530	-4.916	-4.958
S/DEPTH# .9	19.502	17.618	12.1%	8.331	*****	197.0%	51.8%	-96.1%	-153.9%
S/DEPTH# .8	18.837	17.254	11.6%	8.389	*****	198.0%	51.8%	-95.2%	-152.5%
S/DEPTH# .7	18.416	16.938	11.1%	8.435	*****	198.0%	51.8%	-95.2%	-152.5%
S/DEPTH# .6	18.095	16.669	10.7%	8.472	*****	200.1%	51.8%	-94.4%	-151.4%
S/DEPTH# .5	17.812	16.443	10.3%	8.501	*****	201.3%	51.8%	-93.7%	-150.4%
S/DEPTH# .4	17.583	16.261	10.0%	8.523	*****	202.7%	51.8%	-93.1%	-149.5%
S/DEPTH# .3	17.407	16.121	9.7%	8.539	*****	203.7%	51.8%	-92.6%	-148.8%
S/DEPTH# .2	17.282	16.021	9.5%	8.549	*****	204.5%	51.8%	-92.2%	-148.3%
S/DEPTH# .1	17.208	15.961	9.4%	8.556	*****	205.1%	51.8%	-91.9%	-147.9%
S/DEPTH# .0	17.183	15.942	9.3%	8.558	*****	205.4%	51.8%	-91.8%	-147.7%
	28.6%	24.2%	9.2%	24.1%	*****	205.6%	51.8%	-91.7%	-147.6%

CASE 3-A

TABLE II-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA = ETA/HEIGHT	0 .799 37.4%	10.0 .723 31.9%	20.0 .538 12.6%	30.0 .329 =31.5%	50.0 =135 195.5%	75.0 =183 52.7%	100.0 =183 92.2%	130.0 =199 =201 =149.0%	180.0
SURFACE	.000	4.486	6.769	6.680	3.786	1.239	.352	.043	.000
S/DEPTH=1.1	*****	86.7%	82.7%	74.5%	32.4%	=151.0%	=762.5%	*****	*****
S/DEPTH=1.0	*****	4.274	6.733						
S/DEPTH=.9	*****	86.0%	82.6%	6.224	3.769				
S/DEPTH=.8	*****	3.780	5.989	74.8%	36.2%	1.156	.332	.041	.000
S/DEPTH=.7	*****	85.6%	81.8%	5.532	3.400	=135.6%	*****	*****	*****
S/DEPTH=.6	*****	3.319	5.285	74.5%	36.5%	=132.6%	.299	.037	.000
S/DEPTH=.5	*****	85.3%	81.5%	4.863	3.028	=132.6%	*****	*****	*****
S/DEPTH=.4	*****	2.886	4.616	74.5%	36.8%	=130.0%	.265	.033	.000
S/DEPTH=.3	*****	84.9%	81.2%	4.213	2.654	*****	*****	*****	*****
S/DEPTH=.2	*****	2.477	3.977	74.1%	36.9%	=127.8%	.230	.028	.000
S/DEPTH=.1	*****	84.7%	81.0%	3.580	2.277	*****	*****	*****	*****
S/DEPTH=.0	*****	2.088	3.363	73.9%	37.1%	*****	.193	.024	.000
S/DEPTH=.5	*****	84.4%	80.8%	2.962	1.900	*****	*****	*****	*****
S/DEPTH=.4	*****	1.715	2.771	73.7%	37.2%	=125.9%	.156	.019	.000
S/DEPTH=.3	*****	84.2%	80.6%	2.355	1.521	*****	*****	*****	*****
S/DEPTH=.2	*****	1.357	2.196	73.6%	37.3%	=124.5%	.117	.015	.000
S/DEPTH=.1	*****	84.1%	80.5%	1.758	1.141	*****	*****	*****	*****
S/DEPTH=.0	*****	1.008	1.636	73.5%	37.4%	=123.3%	.079	.010	.000
S/DEPTH=.5	*****	83.9%	80.4%	1.168	.8761	*****	*****	*****	*****
S/DEPTH=.4	*****	.668	1.085	73.4%	37.5%	*****	.039	.005	.000
S/DEPTH=.3	*****	83.8%	.541	.583	.135	*****	*****	*****	*****
S/DEPTH=.2	*****	.333	.581	73.4%	37.5%	*****	.000	.000	.000
S/DEPTH=.1	*****	*****	80.4%	73.4%	*****	*****	*****	*****	*****
S/DEPTH=.0	*****	.000	.000	.000	*****	*****	*****	*****	*****

CASE 3=A

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)												
THETA	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0				
ETA/HEIGHT	.799	.723	.538	.329	.025	.135	.183	.201				
	37.4%	31.9%	12.6%	-31.5%	*****	195.5%	52.7%	92.2%				
SURFACE	.000	122.168	181.140	174.185	93.488	29.434	8.251	1.014	.000			
	*****	89.7%	86.2%	78.9%	38.5%	155.2%	*****	*****	*****			
S/DEPTH=1.1	.000	118.448	180.629									
	*****	89.3%	86.2%									
S/DEPTH=1.0	.000	110.188	170.506	170.313	93.544							
	*****	88.6%	85.4%	78.5%	38.8%							
S/DEPTH=.9	.000	103.051	161.641	164.772	94.587	30.302	8.544	1.050	.000			
	*****	87.9%	84.7%	78.0%	39.8%	145.3%	*****	*****	*****			
S/DEPTH=.8	.000	96.927	153.941	159.635	95.424	31.547	8.963	1.104	.000			
	*****	87.2%	84.1%	77.4%	40.7%	134.9%	*****	*****	*****			
S/DEPTH=.7	.000	91.720	147.526	155.948	96.089	32.571	9.336	1.153	.000			
	*****	86.6%	83.4%	76.9%	41.4%	126.4%	739.3%	*****	*****			
S/DEPTH=.6	.000	87.352	141.725	151.757	96.609	33.436	9.661	1.196	.000			
	*****	86.0%	82.9%	76.4%	42.0%	119.5%	707.8%	*****	*****			
S/DEPTH=.5	.000	83.759	137.081	148.605	97.010	34.202	9.939	1.233	.000			
	*****	85.4%	82.4%	76.8%	42.4%	114.0%	682.5%	*****	*****			
S/DEPTH=.4	.000	80.887	133.545	146.036	97.311	34.811	10.167	1.263	.000			
	*****	84.9%	81.9%	75.7%	42.8%	109.6%	662.8%	*****	*****			
S/DEPTH=.3	.000	78.696	130.479	144.045	97.528	35.283	10.346	1.287	.000			
	*****	84.6%	81.6%	75.4%	43.0%	106.3%	648.0%	*****	*****			
S/DEPTH=.2	.000	77.152	128.452	142.826	97.674	35.620	10.473	1.304	.000			
	*****	84.3%	81.3%	75.2%	43.2%	104.0%	637.7%	*****	*****			
S/DEPTH=.1	.000	76.235	127.825	141.776	97.759	35.822	10.550	1.314	.000			
	*****	84.1%	81.2%	75.1%	43.3%	102.7%	631.6%	*****	*****			
S/DEPTH=.0	.000	75.930	126.843	141.093	97.786	35.889	10.576	1.318	.000			
	*****	84.0%	81.1%	75.0%	43.4%	102.2%	629.6%	*****	*****			

TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

123

CASE 3=A

TABLE V=DIMENSIONLESS DRAG FORCE COMPONENT FIELDS...DEFINED IN EQUATION (25)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	37.4%	.799	.723	.538	.329	.135	.199	.199	.201
		31.9%		12.8%	31.5%	*****	52.7%	92.8%	149.0%
SURFACE	390.349	324.194	187.958	76.114	1.253	9.643	19.202	23.141	23.596
	56.5%	49.3%	20.7%	65.1%	*****	*****	*****	260.1%	486.6%
S/DEPTH=1.1	366.960	310.080	187.070						
	53.7%	47.0%	20.4%						
S/DEPTH=1.0	326.134	276.728	168.526	71.766	1.252				
	52.8%	46.0%	19.3%	60.9%	*****	8.798	17.879	21.663	22.099
S/DEPTH=.9	287.865	244.968	150.421	64.882	1.220	*****	*****	273.8%	324.4%
	52.1%	45.4%	19.0%	59.5%	*****	7.695	15.858	19.428	19.642
S/DEPTH=.8	251.520	214.581	132.713	57.891	1.167	*****	*****	*****	22.2%
	51.4%	44.8%	18.7%	58.3%	*****	6.638	13.816	16.836	17.185
S/DEPTH=.7	216.805	185.366	115.358	50.812	1.090	*****	*****	*****	*****
	50.6%	44.2%	18.4%	57.3%	*****	5.619	11.811	14.426	14.729
S/DEPTH=.6	183.458	157.143	98.309	43.665	.988	*****	*****	*****	*****
	50.3%	43.8%	18.2%	56.5%	*****	4.633	9.820	12.019	12.273
S/DEPTH=.5	151.241	129.745	81.524	36.462	.864	*****	*****	*****	*****
	49.9%	43.4%	18.0%	55.8%	*****	3.674	7.841	9.613	9.818
S/DEPTH=.4	119.937	103.016	64.958	29.216	.718	*****	*****	*****	*****
	49.6%	43.1%	17.8%	55.3%	*****	2.737	5.872	7.208	7.363
S/DEPTH=.3	89.345	78.612	48.566	21.938	.555	*****	*****	*****	*****
	49.3%	42.8%	17.6%	54.8%	*****	1.816	3.911	4.805	4.909
S/DEPTH=.2	59.277	50.996	32.305	14.638	.378	*****	*****	*****	*****
	49.1%	42.6%	17.6%	*****	*****	905	1.954	2.402	2.454
S/DEPTH=.1	29.553	25.435	16.131	7.322	.192	*****	*****	*****	*****
	49.0%	42.5%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

[illegible]

CASE 3=A

TABLE VII=DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THEY A =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.799	.723	.538	.329	.025	.135	.183	.199	.201
	37.4%	31.9%	12.6%	-31.5%	*****	195.5%	52.7%	-92.2%	-149.0%
SURFACE	240.302	190.992	106.543	39.978	.471	-4.900	-9.345	-11.134	-11.339
S/DEPTH=1.1	60.8%	53.2%	28.7%	-72.6%	*****	*****	*****	*****	*****
S/DEPTH=1.0	171.009	146.144	86.089	35.491	.470	*****	*****	*****	*****
S/DEPTH=.9	134.636	113.960	68.687	-28.952	.441	4.109	-8.112	-9.758	-9.947
S/DEPTH=.8	103.728	88.120	53.832	-23.010	.396	3.471	-6.377	-7.705	-7.858
S/DEPTH=.7	77.679	66.201	40.812	-17.702	.338	2.377	-4.860	-5.866	-6.016
S/DEPTH=.6	55.993	47.848	29.728	-13.057	.272	-1.715	-3.556	-4.330	-4.419
S/DEPTH=.5	38.266	32.773	20.495	-9.096	.204	-1.172	-2.461	-3.006	-3.069
S/DEPTH=.4	24.172	20.740	13.038	-5.835	.139	-.741	-1.571	-1.923	-1.964
S/DEPTH=.3	13.460	11.565	7.300	-3.288	.082	-.412	-.882	-1.081	-1.105
S/DEPTH=.2	5.939	5.108	3.233	-1.463	.037	-.182	-.391	-.481	-.491
S/DEPTH=.1	1.478	1.272	.807	-.366	.010	-.045	-.098	-.120	-.123
S/DEPTH=.0	.000	.000	.000	-.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 3=A

TABLE VIII=DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA =	10.0	20.0	30.0	50.0	75.0	100.0	130.0	160.0
ETA/HEIGHT=	.799	.538	.329	.025	.135	.183	.199	.201
	37.4%	12.6%	31.5%	*****	195.5%	52.7%	92.2%	149.0%
SURFACE	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.1	.000	63.693	93.407	89.313	48.408	15.486	4.372	.537
	*****	88.3%	84.4%	76.3%	34.1%	150.8%	*****	*****
S/DEPTH=1.0	.000	50.197	92.465	77.913	47.960	13.424	3.869	.479
	*****	87.2%	84.2%	76.9%	41.2%	122.1%	*****	*****
S/DEPTH=.9	.000	46.197	74.033	61.996	39.023	10.792	3.125	.387
	*****	86.6%	83.5%	76.6%	41.7%	117.7%	*****	*****
S/DEPTH=.8	.000	27.573	44.848	48.201	30.947	8.387	2.438	.303
	*****	85.8%	82.7%	76.3%	42.1%	113.9%	*****	*****
S/DEPTH=.7	.000	20.500	33.551	36.376	23.764	6.241	1.821	.226
	*****	85.4%	82.3%	76.0%	42.4%	110.7%	*****	*****
S/DEPTH=.6	.000	14.681	24.158	26.390	17.501	4.381	1.282	.159
	*****	85.0%	82.0%	75.7%	42.6%	107.4%	*****	*****
S/DEPTH=.5	.000	9.976	16.491	18.150	12.177	3.830	.830	.103
	*****	84.7%	81.7%	75.5%	42.9%	103.8%	*****	*****
S/DEPTH=.4	.000	6.271	10.406	11.501	7.804	3.000	.509	.000
	*****	84.5%	81.5%	75.3%	43.0%	101.4%	*****	*****
S/DEPTH=.3	.000	3.479	5.790	6.425	4.195	2.10	.026	.000
	*****	83.4%	81.3%	75.2%	43.1%	100.0%	*****	*****
S/DEPTH=.2	.000	1.531	2.553	2.841	1.955	.053	.007	.000
	*****	83.0%	81.0%	75.0%	43.0%	100.0%	*****	*****
S/DEPTH=.1	.000	.380	.635	.708	.489	.000	.000	.000
	*****	82.8%	80.8%	74.8%	42.8%	100.0%	*****	*****
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000
	*****	82.6%	80.6%	74.6%	42.6%	100.0%	*****	*****

CASE 3=A

TABLE IX=DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA = ETA/HEIGHT*	10.0 723 31.9%	20.0 538 12.6%	30.0 329 31.5%	50.0 135 *****	75.0 100.0 180.0	100.0 183 199	130.0 201 199.0%	153.7%
SURFACE	1.600	1.446	1.076	.659	.048	.271	.367	.402
S/DEPTH=1.1	38.8%	33.2%	14.1%	22.9%	*****	201.9%	57.9%	153.7%
S/DEPTH=1.0	37.8%	32.6%	14.1%	.665	.049	.266	.365	.402
S/DEPTH=.9	36.4%	31.4%	13.8%	28.1%	*****	203.3%	58.1%	153.7%
S/DEPTH=.8	35.2%	30.4%	13.5%	25.9%	*****	205.5%	58.3%	152.2%
S/DEPTH=.7	34.1%	29.4%	13.2%	24.1%	*****	207.5%	58.4%	151.0%
S/DEPTH=.6	33.1%	28.6%	13.0%	22.6%	.091	209.3%	58.6%	149.9%
S/DEPTH=.5	32.2%	27.8%	12.7%	21.3%	.101	210.9%	58.7%	149.0%
S/DEPTH=.4	31.4%	27.0%	12.5%	20.3%	.110	212.2%	58.8%	148.3%
S/DEPTH=.3	30.8%	26.0%	12.3%	19.6%	.117	213.3%	58.8%	147.7%
S/DEPTH=.2	30.3%	25.2%	12.2%	19.0%	.122	214.1%	58.9%	147.5%
S/DEPTH=.1	29.9%	24.5%	12.1%	18.6%	.126	214.6%	58.9%	147.0%
S/DEPTH=.0	29.7%	24.2%	12.0%	18.3%	.128	214.8%	58.9%	146.9%

CASE 3a

TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.001	.002	.002	.003	.001	.001	.002	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.010	.010	.008	.005	.002	.004	.010	.002	.010
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.001	.000	.000	.000	.000	.000	.000	.000	.000

CASE 3-A

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.260 (#4.4X)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.369 (#35.5X)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.386 (#30.4X)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.755 (#32.9X)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.730 (#34.5X)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.967 (#1.2X)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.768 (#30.3X)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	1.060 (#37.7X)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.331 (#44.9X)

CASE 3=a

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.001747	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.007171	STREAM FUNCTION	.000221
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.002631	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.010292	STREAM FUNCTION	.000947
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (46) LINEAR	.100037	STREAM FUNCTION	.156185
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.006053	STREAM FUNCTION	.046715

CASE 3-8

12TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2$
 H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .003886 DPT/LO = .010000
 H/DPT = .388630
 L/LO = .276172 PSI/(G*H*T) = -.001075

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) =	-.407701e-01	X(2)/(H*T*G) =	-.152007e-01
X(3)/(H*T*G) =	-.650076e-02	X(4)/(H*T*G) =	-.279776e-02
X(5)/(H*T*G) =	-.118037e-02	X(6)/(H*T*G) =	-.484126e-03
X(7)/(H*T*G) =	-.192278e-03	X(8)/(H*T*G) =	-.733987e-04
X(9)/(H*T*G) =	-.267143e-04	X(10)/(H*T*G) =	-.910232e-05
X(11)/(H*T*G) =	-.288267e-05	X(12)/(H*T*G) =	-.729308e-06

CASE 3=B

TABLE 1 DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)									
THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	42.2%	692	387	.153	.061	.123	.133	.135	.135
		28.9%	21.3%	183.0%	625.6%	205.2%	34.9%	183.4%	269.6%
SURFACE	23.368	18.376	9.838	3.626	-1.575	-2.964	3.188	3.232	3.231
S/DEPTH=1.3	45.1%	31.3%	22.4%	205.8%	620.9%	210.9%	31.2%	197.5%	287.6%
	100.0%								
S/DEPTH=1.2	21.759	17.902							
	41.0%	29.4%							
S/DEPTH=1.1	20.749	17.279	9.864						
	38.6%	27.4%	21.4%						
S/DEPTH=1.0	19.867	16.725	9.898	3.809					
	36.3%	25.5%	20.2%	187.9%					
S/DEPTH= .9	19.101	16.258	9.914	4.080	-1.455	-2.948	3.186	3.232	3.231
	34.1%	23.7%	19.3%	167.2%	655.8%	210.5%	31.4%	197.5%	287.6%
S/DEPTH= .8	18.441	15.811	9.917	4.310	-1.312	-2.920	3.182	3.231	3.231
	32.1%	22.0%	18.6%	151.5%	713.2%	211.0%	31.7%	196.8%	287.4%
S/DEPTH= .7	17.877	15.443	9.912	4.503	-1.185	-2.894	3.178	3.230	3.231
	30.3%	20.6%	18.1%	139.6%	775.6%	211.4%	31.9%	195.4%	285.5%
S/DEPTH= .6	17.402	15.130	9.901	4.664	-1.075	-2.871	3.174	3.230	3.231
	28.7%	19.2%	17.7%	130.4%	*****	211.8%	32.1%	194.3%	283.9%
S/DEPTH= .5	17.009	14.868	9.889	4.796	-.981	-2.852	3.171	3.230	3.232
	27.3%	18.1%	17.5%	123.3%	*****	212.2%	32.3%	193.3%	282.6%
S/DEPTH= .4	16.695	14.658	9.875	4.900	-.905	-2.836	3.168	3.229	3.232
	26.2%	17.2%	17.3%	117.9%	*****	212.5%	32.4%	192.4%	281.5%
S/DEPTH= .3	16.454	14.495	9.864	4.979	-.845	-2.823	3.166	3.229	3.232
	25.2%	16.4%	17.2%	114.0%	*****	212.8%	32.5%	191.8%	280.6%
S/DEPTH= .2	16.284	14.380	9.854	5.034	-.802	-2.814	3.165	3.229	3.232
	24.6%	15.9%	17.1%	111.3%	*****	213.0%	32.6%	191.3%	280.0%
S/DEPTH= .1	16.183	14.312	9.848	5.067	-.777	-2.808	3.164	3.229	3.232
	24.2%	15.6%	17.1%	108.7%	*****	213.1%	32.7%	191.1%	279.6%
S/DEPTH= .0	16.150	14.289	9.846	5.077	-.768	-2.806	3.163	3.229	3.232
	24.1%	15.5%	17.1%	106.2%	*****	213.1%	32.7%	191.0%	279.5%

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TABLE II=DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD....DEFINED IN EQUATION (22)												
THETA	20.0	30.0	50.0	75.0	100.0	130.0	180.0					
ETA/HEIGHT	.0	.387	.153	.061	.123	.135	.135					
	42.2%	28.9%	21.3%	183.0%	625.6%	205.2%	34.9%					
SURFACE	.000	7.808	8.798	6.262	1.933	.337	.056	.002	.000	.000	.000	.000
*****	91.6%	85.5%	70.6%	40.3%	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.3	.000											

S/DEPTH=1.2	.000	7.152										

S/DEPTH=1.1	.000	6.282	8.293									

S/DEPTH=1.0	.000	90.4%	85.7%	5.884								

S/DEPTH= .9	.000	90.1%	85.4%	73.3%	1.806	.323	.054	.002	.000	.000	.000	.000

S/DEPTH= .8	.000	4.773	6.453	5.256								

S/DEPTH= .7	.000	89.7%	85.1%	73.2%	1.631	.294	.049	.002	.000	.000	.000	.000

S/DEPTH= .6	.000	4.112	5.614	4.639	17.5%	.263	.044	.002	.000	.000	.000	.000

S/DEPTH= .5	.000	89.4%	84.8%	73.0%	1.446	.229	.038	.002	.000	.000	.000	.000

S/DEPTH= .4	.000	3.500	4.820	4.033	1.254	.194	.032	.001	.000	.000	.000	.000

S/DEPTH= .3	.000	89.2%	84.5%	72.9%	.850	.157	.026	.001	.000	.000	.000	.000

S/DEPTH= .2	.000	2.929	4.064	3.437	12.1%	.119	.020	.001	.000	.000	.000	.000

S/DEPTH= .1	.000	88.9%	84.3%	72.8%	11.4%	.080	.013	.001	.000	.000	.000	.000

S/DEPTH= .0	.000	2.392	3.340	2.850	.429	.040	.007	.000	.000	.000	.000	.000

S/DEPTH= .0	.000	88.7%	84.1%	72.7%	*****	*****	*****	*****	*****	*****	*****	*****

S/DEPTH= .0	.000	1.883	2.642	2.270	.215	.000	.000	.000	.000	.000	.000	.000

S/DEPTH= .0	.000	88.5%	83.8%	72.6%	*****	*****	*****	*****	*****	*****	*****	*****

S/DEPTH= .0	.000	1.394	1.864	1.697	.000	.000	.000	.000	.000	.000	.000	.000

S/DEPTH= .0	.000	88.4%	83.6%	72.5%	*****	*****	*****	*****	*****	*****	*****	*****

S/DEPTH= .0	.000	.921	1.301	1.129	.000	.000	.000	.000	.000	.000	.000	.000

S/DEPTH= .0	.000	88.3%	83.7%	72.5%	*****	*****	*****	*****	*****	*****	*****	*****

S/DEPTH= .0	.000	.458	.648	.563	.000	.000	.000	.000	.000	.000	.000	.000

S/DEPTH= .0	.000	88.2%	83.6%	72.4%	*****	*****	*****	*****	*****	*****	*****	*****

S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 3=B

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.865	.892	.937	.153	.061	.123	.133	.115	.115
	42.12%	28.9%	21.5%	-183.0%	625.6%	205.2%	34.9%	-183.4%	269.6%
SURFACE	.000	223.368	240.292	159.866	44.544	7.574	1.331	.017	.000
S/DEPTH=1.3	*****	94.9%	90.5%	78.8%	-21.6%	*****	*****	*****	*****
S/DEPTH=1.2	*****								
S/DEPTH=1.1	*****	207.527							
S/DEPTH=1.0	*****	94.5%							
S/DEPTH= .9	*****	187.327	232.271						
S/DEPTH= .8	*****	93.9%	90.3%						
S/DEPTH= .7	*****	170.015	217.744	158.832					
S/DEPTH= .6	*****	93.4%	89.7%	79.0%					
S/DEPTH= .5	*****	155.239	204.929	156.870					
S/DEPTH= .4	*****	92.8%	89.1%	78.9%					
S/DEPTH= .3	*****	142.702	193.733	154.773					
S/DEPTH= .2	*****	92.2%	88.6%	78.7%					
S/DEPTH= .1	*****	132.155	184.071	152.676					
S/DEPTH= .0	*****	91.6%	88.0%	78.6%					
S/DEPTH= .6	*****	123.392	175.864	150.685					
S/DEPTH= .5	*****	91.1%	87.5%	78.4%					
S/DEPTH= .4	*****	116.241	169.041	148.884					
S/DEPTH= .3	*****	90.8%	87.1%	78.2%					
S/DEPTH= .2	*****	110.566	163.542	147.534					
S/DEPTH= .1	*****	90.1%	86.7%	78.1%					
S/DEPTH= .0	*****	106.260	159.317	146.084					
S/DEPTH= .6	*****	89.8%	86.4%	77.9%					
S/DEPTH= .5	*****	103.240	156.327	145.168					
S/DEPTH= .4	*****	89.5%	86.2%	77.8%					
S/DEPTH= .3	*****	101.451	154.544	144.610					
S/DEPTH= .2	*****	89.3%	86.0%	77.8%					
S/DEPTH= .1	*****	100.858	153.952	144.422					
S/DEPTH= .0	*****	89.2%	86.0%	77.8%					
S/DEPTH= .6	*****	46.990	7.963	1.379					
S/DEPTH= .5	*****	-13.4%	8.667	1.477					
S/DEPTH= .4	*****	49.853	9.307	1.572					
S/DEPTH= .3	*****	6.2%	9.877	1.659					
S/DEPTH= .2	*****	52.335	10.369	1.736					
S/DEPTH= .1	*****	54.451	10.778	1.802					
S/DEPTH= .0	*****	3.7%	11.099	1.854					
S/DEPTH= .6	*****	56.212	11.331	1.893					
S/DEPTH= .5	*****	7.1%	12.8%	1.916					
S/DEPTH= .4	*****	57.034	11.471	1.924					
S/DEPTH= .3	*****	9.7%	11.518	1.963					
S/DEPTH= .2	*****	58.726	11.518	1.963					
S/DEPTH= .1	*****	11.6%	13.9%	1.963					
S/DEPTH= .0	*****	59.099	13.9%	1.963					
S/DEPTH= .6	*****	12.8%	13.9%	1.963					
S/DEPTH= .5	*****	59.960	13.9%	1.963					
S/DEPTH= .4	*****	144.610	13.9%	1.963					
S/DEPTH= .3	*****	77.8%	13.9%	1.963					
S/DEPTH= .2	*****	153.952	13.9%	1.963					
S/DEPTH= .1	*****	86.0%	13.9%	1.963					
S/DEPTH= .0	*****	89.2%	13.9%	1.963					

TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

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CASE 3=B

TABLE VDIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.865	.692	.387	.153	.061	.123	.133	.135	.135
	42.2%	28.9%	-21.3%	-183.0%	625.6%	205.2%	34.9%	183.4%	269.6%
SURFACE	457.311	310.437	112.381	22.861	-1.109	-7.792	-9.541	-9.884	-9.893
S/DEPTH=1.3	59.4%	42.2%	-44.3%	*****	*****	*****	*****	*****	*****
S/DEPTH=1.2	436.004								
S/DEPTH=1.1	100.0%								
S/DEPTH=1.0	388.159	287.736	107.478						
S/DEPTH=.9	52.2%	37.6%	-39.1%	22.039					
S/DEPTH=.8	343.025	256.812	-39.8%	20.480	-934	-7.336	-9.051	-9.388	-9.598
S/DEPTH=.7	301.820	227.922	97.711	18.717	-743	-6.475	-8.038	-8.344	-8.534
S/DEPTH=.6	49.0%	34.5%	87.896	*****	*****	*****	*****	*****	*****
S/DEPTH=.5	263.889	200.773	38.6%	16.772	-587	-5.630	-7.027	-7.301	-7.310
S/DEPTH=.4	47.7%	33.3%	-37.9%	*****	*****	*****	*****	*****	*****
S/DEPTH=.3	195.734	132.3%	68.232	14.668	-460	-4.799	-6.018	-6.257	-6.266
S/DEPTH=.2	45.5%	31.4%	58.418	*****	*****	*****	*****	*****	*****
S/DEPTH=.1	164.643	127.347	37.7%	12.429	-354	-3.981	-5.012	-5.214	-5.222
S/DEPTH=.0	44.7%	30.6%	48.626	*****	*****	*****	*****	*****	*****
S/DEPTH=.9	133.062	104.863	37.6%	10.076	-266	-3.172	-4.007	-4.171	-4.178
S/DEPTH=.8	43.9%	29.9%	38.861	7.635	-189	-2.372	-3.004	-3.126	-3.133
S/DEPTH=.7	79.230	61.843	29.120	*****	*****	*****	*****	*****	*****
S/DEPTH=.6	42.8%	29.0%	-37.3%	5.127	-122	-1.578	-2.002	-2.085	-2.089
S/DEPTH=.5	55.453	41.009	19.401	*****	*****	*****	*****	*****	*****
S/DEPTH=.4	42.5%	28.7%	9.696	2.574	-059	-0.788	-1.001	-1.043	-1.044
S/DEPTH=.3	26.118	20.439	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.2	42.3%	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.1	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 3=B

TABLE VI=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	42.2%	28.9%	21.3%	183.0%	625.6%	205.2%	34.9%	183.4%	269.6%
	.865	.692	.387	.153	.061	.123	.133	.135	.135
	.000	.000	.000	.000	.000	.000	.000	.000	.000
SURFACE	174.957	209.030	159.333	53.738	9.675	1.622	.051	.000	.000
S/DEPTH=1.3	92.5%	87.5%	76.0%	10.1%	.000	.000	.000	.000	.000
S/DEPTH=1.2	160.097								
S/DEPTH=1.1	91.8%	197.094							
S/DEPTH=1.0	100.380	87.7%	149.856						
S/DEPTH=.9	122.535	174.608	178.3%	134.069	50.248	9.270	1.557	.000	.000
S/DEPTH=.8	91.0%	87.5%	78.3%	134.069	6.3%	.000	.000	.000	.000
S/DEPTH=.7	106.292	153.488	78.2%	134.069	45.402	8.438	1.414	.050	.000
S/DEPTH=.6	90.7%	87.2%	78.0%	103.114	8.0%	.000	.000	.000	.000
S/DEPTH=.5	91.413	133.568	78.0%	114.690	40.290	7.539	1.262	.048	.000
S/DEPTH=.4	90.4%	86.9%	77.685	86.7%	9.5%	.000	.000	.000	.000
S/DEPTH=.3	64.922	96.705	87.947	34.948	10.7%	6.579	1.100	.043	.000
S/DEPTH=.2	89.9%	86.5%	78.0%	10.7%	.000	.000	.000	.000	.000
S/DEPTH=.1	52.953	79.471	72.971	29.412	5.566	.930	.038	.000	.000
S/DEPTH=.0	89.7%	86.4%	77.9%	11.7%	.000	.000	.000	.000	.000
S/DEPTH=.0	89.5%	86.2%	77.8%	12.5%	4.508	.753	.031	.000	.000
S/DEPTH=.0	30.795	48.721	43.494	17.696	3.413	.570	.024	.000	.000
S/DEPTH=.0	89.4%	86.1%	77.6%	13.1%	.000	.000	.000	.000	.000
S/DEPTH=.0	20.330	30.949	28.934	11.982	2.291	.383	.016	.000	.000
S/DEPTH=.0	89.3%	86.0%	77.8%	13.5%	.000	.000	.000	.000	.000
S/DEPTH=.0	10.106	15.415	14.448	6.006	1.150	.192	.008	.000	.000
S/DEPTH=.0	86.0%	86.0%	77.6%	.000	.000	.000	.000	.000	.000
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000

TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

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TABLE VIII=DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THE TA	ETA/HEIGHT	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
.865	.892	.387	.153	.061	.123	.34.9%	.103.4%	.135	.269.6%	
42.8%	26.9%	=21.3%	=183.0%	625.6%	205.2%					
SURFACE	.000	126.648	129.600	85.971	25.008	4.303	.723	.017	.000	
S/DEPTH=1.3	*****	93.7%	88.0%	73.8%	=34.1%	*****	*****	*****	*****	
S/DEPTH=1.2	*****	108.297								
S/DEPTH=1.1	*****	92.7%	116.167							
S/DEPTH=1.0	*****	86.854	88.5%	76.212						
S/DEPTH=.9	*****	91.7%	88.1%	78.5%	21.735	3.928	.663	.017	.000	
S/DEPTH=.8	*****	91.7%	87.7%	78.4%	2.1%	*****	*****	*****	*****	
S/DEPTH=.7	*****	91.7%	87.7%	78.4%	17.618	3.222	.541	.017	.000	
S/DEPTH=.6	*****	91.7%	87.7%	78.4%	4.8%	*****	*****	*****	*****	
S/DEPTH=.5	*****	91.7%	87.7%	78.4%	13.786	2.548	.427	.015	.000	
S/DEPTH=.4	*****	91.7%	87.7%	78.4%	7.1%	*****	*****	*****	*****	
S/DEPTH=.3	*****	91.7%	87.7%	78.4%	10.315	1.924	.322	.012	.000	
S/DEPTH=.2	*****	91.7%	87.7%	78.4%	9.0%	*****	*****	*****	*****	
S/DEPTH=.1	*****	91.7%	87.7%	78.4%	7.272	1.367	.229	.009	.000	
S/DEPTH=.0	*****	91.7%	87.7%	78.4%	10.6%	*****	*****	*****	*****	
S/DEPTH=.9	*****	91.7%	87.7%	78.4%	4.710	.892	.149	.006	.000	
S/DEPTH=.8	*****	91.7%	87.7%	78.4%	*****	*****	*****	*****	*****	
S/DEPTH=.7	*****	91.7%	87.7%	78.4%	2.674	.509	.085	.004	.000	
S/DEPTH=.6	*****	91.7%	87.7%	78.4%	*****	*****	*****	*****	*****	
S/DEPTH=.5	*****	91.7%	87.7%	78.4%	1.196	.228	.038	.002	.000	
S/DEPTH=.4	*****	91.7%	87.7%	78.4%	*****	*****	*****	*****	*****	
S/DEPTH=.3	*****	91.7%	87.7%	78.4%	.300	.057	.010	.000	.000	
S/DEPTH=.2	*****	91.7%	87.7%	78.4%	*****	*****	*****	*****	*****	
S/DEPTH=.1	*****	91.7%	87.7%	78.4%	.000	.000	.000	.000	.000	
S/DEPTH=.0	*****	91.7%	87.7%	78.4%	*****	*****	*****	*****	*****	

CASE 3-B

TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.065	.062	.0587	.0553	.0501	.0433	.035	.025	.0135
	42.2%	28.9%	-21.3%	-183.0%	625.6%	205.2%	34.9%	183.4%	-269.6%
SURFACE	1.736	1.388	.776	.306	.123	.0247	.0267	.0271	.0271
S/DEPTH=1.3	44.8%	31.9%	-16.9%	-176.1%	627.6%	218.9%	49.4%	-184.6%	-283.4%
S/DEPTH=1.2	100.0%								
S/DEPTH=1.1	1.639	1.363	.784	.324	.112	.0245	.0267	.0271	.0271
S/DEPTH=1.0	41.5%	30.6%	-15.2%	-156.4%	674.1%	219.4%	49.9%	-184.6%	-283.4%
S/DEPTH= .9	1.577	1.329	.784	.324	.112	.0245	.0267	.0271	.0271
S/DEPTH= .8	39.6%	29.5%	-12.9%	-137.5%	748.5%	220.6%	50.6%	-183.8%	-283.3%
S/DEPTH= .7	37.7%	28.0%	-9.7%	-122.8%	748.5%	220.6%	50.6%	-183.8%	-283.3%
S/DEPTH= .6	1.522	1.222	.816	.393	.087	.0240	.0266	.0271	.0271
S/DEPTH= .5	36.0%	26.7%	-8.7%	-110.4%	833.4%	221.6%	51.2%	-182.1%	-281.2%
S/DEPTH= .4	1.430	1.244	.811	.373	.099	.0243	.0267	.0271	.0271
S/DEPTH= .3	34.4%	25.6%	-7.8%	-101.5%	833.4%	221.6%	51.2%	-182.1%	-281.2%
S/DEPTH= .2	1.336	1.186	.821	.322	.068	.0236	.0266	.0271	.0271
S/DEPTH= .1	30.5%	22.7%	-7.2%	-94.7%	833.4%	221.6%	51.2%	-182.1%	-281.2%
S/DEPTH= .0	1.315	1.173	.823	.332	.061	.0235	.0265	.0271	.0271
S/DEPTH= .3	29.5%	22.0%	-6.8%	-89.6%	833.4%	221.6%	51.2%	-182.1%	-281.2%
S/DEPTH= .2	1.298	1.162	.824	.340	.056	.0234	.0265	.0271	.0271
S/DEPTH= .1	28.6%	21.5%	-6.4%	-85.9%	833.4%	221.6%	51.2%	-182.1%	-281.2%
S/DEPTH= .0	1.287	1.155	.825	.345	.052	.0233	.0265	.0271	.0271
S/DEPTH= .3	28.2%	21.1%	-6.2%	-83.3%	833.4%	221.6%	51.2%	-182.1%	-281.2%
S/DEPTH= .2	1.280	1.151	.825	.349	.049	.0232	.0265	.0271	.0271
S/DEPTH= .1	27.9%	20.9%	-6.1%	-81.9%	833.4%	221.6%	51.2%	-182.1%	-281.2%
S/DEPTH= .0	1.278	1.149	.825	.350	.048	.0232	.0265	.0271	.0271
S/DEPTH= .3	27.6%	20.8%	-6.0%	-81.4%	833.4%	221.6%	51.2%	-182.1%	-281.2%

CASE 3-R

TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION.... DEFINED IN EQ.(35)									
SURFACE	.000	.004	.006	.010	.011	.005	.003	.008	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION.... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION.... DEFINED IN EQ.(36)									
SURFACE	.021	.020	.016	.011	.003	.017	.019	.003	.020
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION.... DEFINED IN EQ.(37)									
SURFACE	.003	.002	.001	.000	.000	.000	.000	.000	.000

CASE 3-B

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.276 (10.1%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.276 (-81.1%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.304 (-65.8%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.580 (-73.1%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.556 (-76.0%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.963 (-1.7%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.605 (-65.4%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.789 (-85.1%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.231 (-107.4%)

CASE 3=B

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10)	DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR			
	DEFINED IN EQUATION (46)			
	LINEAR	.007127	STREAM FUNCTION	.000000
(11)	DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR			
	DEFINED IN EQUATION (47)			
	LINEAR	.014347	STREAM FUNCTION	.000762
(12)	DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR			
	DEFINED IN EQUATION (46)			
	LINEAR	.011409	STREAM FUNCTION	.000000
(13)	DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR			
	DEFINED IN EQUATION (47)			
	LINEAR	.020881	STREAM FUNCTION	.003223
(14)	DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER			
	DEFINED IN EQUATION (48)			
	LINEAR	.200945	STREAM FUNCTION	.328841
(15)	DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER			
	DEFINED IN EQUATION (49)			
	LINEAR	.011712	STREAM FUNCTION	.148047

CASE 3=C

17TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318)^{1/3} T^{4/3}$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .005821 DPT/LO = .010000

H/DPT = .582125

L/LO = .291992 PSI/(G*H*T) = -.001219

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) =	.323010=01	X(2)/(H*T*G) =	-.130547=01
X(3)/(H*T*G) =	-.626027=02	X(4)/(H*T*G) =	-.308047=02
X(5)/(H*T*G) =	-.150364=02	X(6)/(H*T*G) =	-.721618=03
X(7)/(H*T*G) =	-.338902=03	X(8)/(H*T*G) =	-.155289=03
X(9)/(H*T*G) =	-.692566=04	X(10)/(H*T*G) =	-.299550=04
X(11)/(H*T*G) =	-.124924=04	X(12)/(H*T*G) =	-.498685=05
X(13)/(H*T*G) =	-.188495=05	X(14)/(H*T*G) =	-.663514=06
X(15)/(H*T*G) =	-.212018=06	X(16)/(H*T*G) =	-.610408=07
X(17)/(H*T*G) =	-.177999=07		

TABLE 7. DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD... DEFINED IN EQUATION (21)

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CASE 1=C

TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)									
THEYA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	44.3%	17.3%	87.0%	630.8%	545.6%	231.3%	14.5%	275.8%	390.6%
SURFACE	.000	10.016	8.296	4.604	.956	.112	.013	.000	.000
*****	92.9%	83.4%	57.1%	190.9%	*****	*****	*****	*****	*****
S/DEPTH=1.5	.000								
*****	*****								
S/DEPTH=1.4	.000								
*****	*****								
S/DEPTH=1.3	.000	9.403							
*****	92.5%	92.0%							
S/DEPTH=1.2	.000	8.206							
*****	92.0%	82.0%							
S/DEPTH=1.1	.000	7.146	7.866						
*****	91.6%	85.0%	85.0%						
S/DEPTH=1.0	.000	6.199	6.978	4.456					
*****	91.2%	84.6%	84.6%	64.8%					
S/DEPTH=.9	.000	5.349	6.140	4.020	.914	.109	.012	.000	.000
*****	90.8%	84.3%	84.3%	64.9%	136.3%	*****	*****	*****	*****
S/DEPTH=.8	.000	4.580	5.348	3.579	.835	.100	.011	.000	.000
*****	90.5%	84.0%	84.0%	65.0%	129.5%	*****	*****	*****	*****
S/DEPTH=.7	.000	3.877	4.596	3.134	.748	.090	.010	.000	.000
*****	90.2%	83.7%	83.7%	65.1%	123.8%	*****	*****	*****	*****
S/DEPTH=.6	.000	3.229	3.877	2.686	.654	.079	.009	.000	.000
*****	89.9%	83.5%	83.5%	65.2%	119.1%	*****	*****	*****	*****
S/DEPTH=.5	.000	2.627	3.188	2.838	.554	.067	.008	.000	.000
*****	89.7%	83.3%	83.3%	65.2%	115.2%	*****	*****	*****	*****
S/DEPTH=.4	.000	2.060	2.522	1.790	.449	.055	.006	.000	.000
*****	89.5%	83.1%	83.1%	65.2%	115.2%	*****	*****	*****	*****
S/DEPTH=.3	.000	1.522	1.875	1.342	.340	.042	.005	.000	.000
*****	89.4%	83.0%	83.0%	65.3%	115.2%	*****	*****	*****	*****
S/DEPTH=.2	.000	1.004	1.242	.894	.229	.028	.003	.000	.000
*****	89.2%	82.9%	82.9%	65.3%	115.2%	*****	*****	*****	*****
S/DEPTH=.1	.000	.499	.619	.447	.115	.014	.002	.000	.000
*****	88.8%	82.8%	82.8%	65.3%	115.2%	*****	*****	*****	*****
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 3=C

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.898	.251	.059	.072	.099	.102	.102	.102
	44.3%	17.3%	630.8%	545.6%	231.3%	14.5%	275.8%	390.6%
SURFACE	.000	305.311	226.915	112.405	20.458	2.335	.245	.010
S/DEPTH#1.5	*****	96.6%	90.9%	72.5%	148.3%	*****	*****	*****
S/DEPTH#1.4	*****	.000						
S/DEPTH#1.3	*****	288.079						
S/DEPTH#1.2	*****	96.4%						
S/DEPTH#1.1	*****	255.222						
S/DEPTH#1.0	*****	96.0%						
S/DEPTH# .9	*****	227.174	221.432					
S/DEPTH# .8	*****	95.5%	90.9%	113.765				
S/DEPTH# .7	*****	203.304	210.088	73.5%				
S/DEPTH# .6	*****	95.1%	90.4%	116.935				
S/DEPTH# .5	*****	183.072	199.598	74.4%	22.085	2.496	.266	.008
S/DEPTH# .4	*****	94.6%	90.0%	119.161	124.8%	*****	*****	*****
S/DEPTH# .3	*****	166.021	190.090	75.1%	24.660	2.852	.313	.004
S/DEPTH# .2	*****	94.1%	89.6%	120.673	100.1%	*****	*****	*****
S/DEPTH# .1	*****	151.767	181.643	82.1%	26.938	3.177	.354	.000
	*****	93.5%	89.2%	75.5%	82.1%	*****	*****	*****
	*****	139.993	174.301	121.655	28.915	3.466	.391	.003
	*****	93.0%	88.8%	75.2%	86.8%	*****	*****	*****
	*****	130.435	168.066	122.260	30.509	4.22	.422	.005
	*****	92.6%	88.4%	76.1%	58.8%	*****	*****	*****
	*****	122.885	163.007	122.605	31.958	3.924	.448	.007
	*****	92.1%	88.1%	76.2%	51.5%	*****	*****	*****
	*****	117.176	159.063	122.784	33.022	4.088	.468	.008
	*****	91.6%	87.9%	76.3%	46.2%	*****	*****	*****
	*****	113.184	156.251	122.665	33.782	4.207	.482	.009
	*****	91.5%	87.7%	76.4%	42.7%	*****	*****	*****
	*****	110.822	154.567	122.695	34.238	4.279	.491	.009
	*****	91.3%	87.6%	76.5%	40.6%	*****	*****	*****
	*****	110.041	154.005	122.902	34.369	4.303	.494	.010
	*****	91.3%	87.5%	76.5%	39.9%	*****	*****	*****

TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)																			
THETA =		0		10.0		20.0		30.0		50.0		75.0		100.0		130.0		180.0	
ETA/HEIGHT =		.898		.596		.251		.059		.072		.099		.102		.102		.102	
		44.3%		17.3%		87.0%		630.8%		545.6%		231.3%		14.5%		275.8%		390.6%	
SURFACE	285.378	52.700	118.007	111.868	29.909	3.681	.425	.044	.020										
	93.7%	66.9%	113.6%	112.3%	126.9%	*****	*****	*****	*****										
S/DEPTH=1.5	281.097																		
	100.0%																		
S/DEPTH=1.4	260.612																		
	100.0%																		
S/DEPTH=1.3	236.572	57.133																	
	92.5%	69.5%																	
S/DEPTH=1.2	216.113	62.870																	
	92.3%	74.1%																	
S/DEPTH=1.1	193.925	64.690	107.045																
	92.1%	76.9%	113.0%																
S/DEPTH=1.0	172.403	63.677	86.489	106.739															
	92.0%	78.7%	114.7%	110.5%															
S/DEPTH= .9	151.749	60.623	69.589	92.635	28.463	3.566	.411	.040	.017										
	91.6%	79.9%	116.4%	110.9%	121.6%	*****	*****	*****	*****										
S/DEPTH= .8	132.037	56.106	55.676	79.597	25.803	3.271	.375	.032	.011										
	91.6%	80.6%	118.2%	111.3%	121.3%	*****	*****	*****	*****										
S/DEPTH= .7	113.258	50.547	44.194	67.520	22.955	2.942	.336	.026	.007										
	91.4%	81.2%	120.1%	111.7%	121.0%	*****	*****	*****	*****										
S/DEPTH= .6	95.393	44.253	34.676	56.293	19.950	2.582	.295	.020	.005										
	91.3%	81.6%	122.0%	112.0%	120.7%	*****	*****	*****	*****										
S/DEPTH= .5	78.226	37.444	26.728	45.795	16.614	2.195	.250	.016	.003										
	91.1%	81.6%	123.8%	112.3%	120.5%	*****	*****	*****	*****										
S/DEPTH= .4	61.766	30.283	20.010	35.907	13.573	1.785	.203	.012	.002										
	91.0%	82.0%	125.4%	112.6%	120.4%	*****	*****	*****	*****										

TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

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CASE 3=C

TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.898	.596	.251	.059	.072	.099	.102	.102	.102
	44.3%	17.3%	87.0%	630.8%	545.8%	231.3%	14.5%	275.8%	390.6%
SURFACE	.000	225.596	204.711	124.949	26.491	3.417	.386	.003	.000
S/DEPTH=1.5	*****	94.4%	67.7%	70.1%	104.3%	*****	*****	*****	*****
S/DEPTH=1.4	*****								
S/DEPTH=1.3	*****								
S/DEPTH=1.2	*****								
S/DEPTH=1.1	*****								
S/DEPTH=1.0	*****								
S/DEPTH= .9	*****								
S/DEPTH= .8	*****								
S/DEPTH= .7	*****								
S/DEPTH= .6	*****								
S/DEPTH= .5	*****								
S/DEPTH= .4	*****								
S/DEPTH= .3	*****								
S/DEPTH= .2	*****								
S/DEPTH= .1	*****								
S/DEPTH= .0	*****								

CASE 3=C

TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THEYA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.898	.596	.251	.059	.072	.099	.102	.102	.102
	44.3%	17.3%	87.0%	630.8%	545.6%	231.3%	14.5%	275.8%	390.6%
SURFACE	454.271	183.134	31.411	2.580	1.017	2.251	2.423	2.446	2.446
S/DEPTH=1.5	70.8%	30.4%	261.8%	*****	*****	*****	*****	*****	*****
S/DEPTH=1.4	431.682								
S/DEPTH=1.3	100.0%								
S/DEPTH=1.2	167.009								
S/DEPTH=1.1	274.800								
S/DEPTH=1.0	51.8%								
S/DEPTH= .9	133.907								
S/DEPTH= .8	41.9%								
S/DEPTH= .7	171.698								
S/DEPTH= .6	44.8%								
S/DEPTH= .5	133.907								
S/DEPTH= .4	41.9%								
S/DEPTH= .3	171.698								
S/DEPTH= .2	44.8%								
S/DEPTH= .1	133.907								
S/DEPTH= .0	41.9%								
S/DEPTH= .9	103.008								
S/DEPTH= .8	39.2%								
S/DEPTH= .7	77.769								
S/DEPTH= .6	36.7%								
S/DEPTH= .5	57.828								
S/DEPTH= .4	34.5%								
S/DEPTH= .3	40.642								
S/DEPTH= .2	32.5%								
S/DEPTH= .1	27.432								
S/DEPTH= .0	30.8%								
S/DEPTH= .9	12.150								
S/DEPTH= .8	6.754								
S/DEPTH= .7	9.480								
S/DEPTH= .6	4.160								
S/DEPTH= .5	2.976								
S/DEPTH= .4	1.032								
S/DEPTH= .3	.740								
S/DEPTH= .2	*****								
S/DEPTH= .1	*****								
S/DEPTH= .0	*****								
S/DEPTH= .9	2.516								
S/DEPTH= .8	2.281								
S/DEPTH= .7	1.986								
S/DEPTH= .6	1.651								
S/DEPTH= .5	1.299								
S/DEPTH= .4	.934								
S/DEPTH= .3	.638								
S/DEPTH= .2	.459								
S/DEPTH= .1	.320								
S/DEPTH= .0	.862								
S/DEPTH= .9	2.047								
S/DEPTH= .8	1.609								
S/DEPTH= .7	1.226								
S/DEPTH= .6	.897								
S/DEPTH= .5	.621								
S/DEPTH= .4	.396								
S/DEPTH= .3	.222								
S/DEPTH= .2	.099								
S/DEPTH= .1	.025								
S/DEPTH= .0	.000								
S/DEPTH= .9	2.216								
S/DEPTH= .8	1.750								
S/DEPTH= .7	1.339								
S/DEPTH= .6	.983								
S/DEPTH= .5	.683								
S/DEPTH= .4	.437								
S/DEPTH= .3	.246								
S/DEPTH= .2	.109								
S/DEPTH= .1	.027								
S/DEPTH= .0	.000								
S/DEPTH= .9	2.239								
S/DEPTH= .8	1.769								
S/DEPTH= .7	1.354								
S/DEPTH= .6	.995								
S/DEPTH= .5	.691								
S/DEPTH= .4	.442								
S/DEPTH= .3	.249								
S/DEPTH= .2	.111								
S/DEPTH= .1	.028								
S/DEPTH= .0	.000								

CASE 3=C

TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)												
THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0			
ETA/HEIGHT=	.898	.251	.059	.059	.072	.099	.102	.102	.102			
	44.3%	17.3%	-87.0%	-630.8%	545.6%	231.3%	14.5%	-275.8%	-390.6%			
SURFACE	.000	179.617	125.390	63.885	12.581	1.462	.163	.000	.000			
S/DEPTH#1.5	*****	95.0%	87.1%	63.3%	-177.2%	*****	*****	*****	*****			
S/DEPTH#1.4	*****	.000	.000	.000	.000	.000	.000	.000	.000			
S/DEPTH#1.3	*****	161.244	.000	.000	.000	.000	.000	.000	.000			
S/DEPTH#1.2	*****	127.314	.000	.000	.000	.000	.000	.000	.000			
S/DEPTH#1.1	*****	99.596	.000	.000	.000	.000	.000	.000	.000			
S/DEPTH#1.0	*****	77.010	.000	.000	.000	.000	.000	.000	.000			
S/DEPTH# .9	*****	58.667	.000	.000	.000	.000	.000	.000	.000			
S/DEPTH# .8	*****	43.838	.000	.000	.000	.000	.000	.000	.000			
S/DEPTH# .7	*****	31.925	.000	.000	.000	.000	.000	.000	.000			
S/DEPTH# .6	*****	22.446	.000	.000	.000	.000	.000	.000	.000			
S/DEPTH# .5	*****	15.011	.000	.000	.000	.000	.000	.000	.000			
S/DEPTH# .4	*****	9.312	.000	.000	.000	.000	.000	.000	.000			
S/DEPTH# .3	*****	5.112	.000	.000	.000	.000	.000	.000	.000			
S/DEPTH# .2	*****	2.232	.000	.000	.000	.000	.000	.000	.000			
S/DEPTH# .1	*****	.552	.000	.000	.000	.000	.000	.000	.000			
S/DEPTH# .0	*****	.000	.000	.000	.000	.000	.000	.000	.000			

CASE 3=C

TABLE IX=DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.898	.596	.251	.059	.072	.099	.102	.102	.102
	44.3%	17.3%	87.0%	630.8%	545.6%	231.3%	14.5%	275.8%	390.6%
SURFACE	1.802	1.194	.503	.118	.145	.198	.204	.204	.204
S/DEPTH=1.5	48.0%	22.6%	76.9%	60.4%	54.6%	257.1%	43.3%	278.4%	417.7%
	1.781								
S/DEPTH=1.4	100.0%								
	1.695								
S/DEPTH=1.3	100.0%								
	1.616								
S/DEPTH=1.2	42.1%	22.0%							
	1.543	1.167							
S/DEPTH=1.1	39.7%	21.2%							
	1.478	1.147							
S/DEPTH=1.0	37.5%	20.2%	.520						
	1.420	1.126	69.6%						
S/DEPTH= .9	35.1%	19.1%	59.4%	.130					
	1.368	1.106	.575	531.7%	.139	.197	.204	.204	.204
S/DEPTH= .8	33.0%	18.1%	51.9%	405.9%	562.6%	257.7%	44.0%	100.0%	100.0%
	1.323	1.088	.595	.189	.131	.196	.203	.204	.204
S/DEPTH= .7	30.9%	17.0%	46.2%	331.1%	591.8%	258.6%	45.1%	278.3%	417.8%
	1.284	1.071	.611	.213	.123	.195	.203	.204	.204
S/DEPTH= .6	29.1%	16.0%	41.9%	282.4%	621.5%	259.5%	46.2%	276.6%	417.5%
	1.251	1.056	.623	.232	.116	.194	.203	.204	.204
S/DEPTH= .5	27.5%	15.0%	38.7%	249.0%	651.0%	260.3%	47.1%	274.8%	415.0%
	1.223	1.042	.633	.249	.110	.193	.203	.204	.204
S/DEPTH= .4	26.0%	14.2%	36.2%	225.5%	676.2%	261.0%	47.9%	272.8%	412.8%
	1.201	1.032	.641	.262	.105	.193	.203	.204	.204
S/DEPTH= .3	24.6%	13.5%	34.3%	208.7%	704.9%	261.6%	48.5%	271.0%	411.0%
	1.184	1.023	.646	.271	.102	.192	.203	.204	.204
S/DEPTH= .2	23.9%	12.9%	33.0%	196.9%	726.7%	262.0%	49.0%	270.3%	409.7%
	1.172	1.017	.650	.278	.099	.192	.203	.204	.204
S/DEPTH= .1	23.2%	12.5%	32.1%	189.2%	743.5%	262.4%	49.3%	269.3%	408.7%
	1.165	1.013	.652	.283	.097	.192	.203	.204	.204
S/DEPTH= .0	22.7%	12.3%	31.5%	184.7%	754.0%	262.6%	49.5%	269.0%	408.1%
	1.162	1.012	.653	.284	.097	.192	.203	.204	.204
	22.6%	12.2%	31.4%	183.3%	757.6%	262.6%	49.6%	268.8%	407.9%

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TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA#	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.011	.020	.026	.027	.012	.007	.017	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.032	.030	.025	.017	.004	.026	.029	.004	.029
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.003	.001	.000	.000	.000	.000	.000	.000	.000

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TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.292 (15.0%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.211 (=136.5%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.244 (=107.2%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.455 (=120.8%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.438 (=124.7%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.962 (=1.8%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.485 (=106.3%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.504 (=142.0%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.166 (=188.0%)

CASE 3=C

TABLE XI(CONT),OVERALL WAVE PARAMETERS..., DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.016695	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.021592	STREAM FUNCTION	.000657
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.028308	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.031850	STREAM FUNCTION	.002942
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.303249	STREAM FUNCTION	.515032
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.016653	STREAM FUNCTION	.264397

CASE 3=D

19TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

L0 = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $L0 = (G/6.28318) * T^2 * 2$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/L0 = .007753 DPT/L0 = .010000

H/DPT = .775326

L/L0 = .308203 PSI/(G*H*T) = -.001185

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) =	-.258552e01	X(2)/(H*T*G) =	-.109137e01
X(3)/(H*T*G) =	-.957257e02	X(4)/(H*T*G) =	-.296328e02
X(5)/(H*T*G) =	-.157702e02	X(6)/(H*T*G) =	-.633384e03
X(7)/(H*T*G) =	-.434048e03	X(8)/(H*T*G) =	-.223528e03
X(9)/(H*T*G) =	-.112953e03	X(10)/(H*T*G) =	-.565075e04
X(11)/(H*T*G) =	-.276158e04	X(12)/(H*T*G) =	-.134811e04
X(13)/(H*T*G) =	-.655123e05	X(14)/(H*T*G) =	-.306023e05
X(15)/(H*T*G) =	-.139533e05	X(16)/(H*T*G) =	-.712364e06
X(17)/(H*T*G) =	-.346364e06	X(18)/(H*T*G) =	-.247076e06
X(19)/(H*T*G) =	-.179655e06		

TABLE II=DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)									
THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.922	.460	.154	.015	.064	.077	.078	.078	.078
	45.8%	7.1%	205.3%	*****	601.1%	269.1%	11.9%	393.0%	544.3%
SURFACE	.000	10.402	6.658	3.112	.495	.037	.009	.004	.000
S/DEPTH=1.7	*****	92.7%	77.8%	32.1%	*****	*****	*****	*****	*****
S/DEPTH=1.6	*****								
S/DEPTH=1.5	*****								
S/DEPTH=1.4	*****								
S/DEPTH=1.3	*****								
S/DEPTH=1.2	*****								
S/DEPTH=1.1	*****								
S/DEPTH=1.0	*****								
S/DEPTH= .9	*****								
S/DEPTH= .8	*****								
S/DEPTH= .7	*****								
S/DEPTH= .6	*****								
S/DEPTH= .5	*****								
S/DEPTH= .4	*****								
S/DEPTH= .3	*****								
S/DEPTH= .2	*****								
S/DEPTH= .1	*****								
S/DEPTH= 0	*****								

CASE 3=D

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	150.0	180.0
ETA/HEIGHT =	.922	.460	.154	.015	.064	.077	.078	.078	.078
	45.8%	7.1%	205.3%	*****	601.1%	269.1%	11.9%	393.0%	544.3%
SURFACE	.000	338.881	180.347	73.436	10.130	.051	.766	.571	.000
S/DEPTH=1.7	*****	97.3%	89.8%	61.9%	*****	*****	*****	*****	*****
	.000								
S/DEPTH=1.6	*****								
	.000								
8/DEPTH=1.5	*****								
	.000								
S/DEPTH=1.4	*****								
	.000								
S/DEPTH=1.3	*****	315.147							
	.000	97.1%							
S/DEPTH=1.2	*****	277.759							
	.000	96.8%							
8/DEPTH=1.1	*****	245.711	179.579						
	.000	96.4%	90.0%						
S/DEPTH=1.0	*****	218.392	175.066	74.144					
	.000	96.3%	89.9%	63.6%					
S/DEPTH=.9	*****	195.840	170.018	73.559	11.089	.241	.672	.488	.000
	.000	95.6%	89.7%	66.4%	*****	*****	*****	*****	*****
S/DEPTH=.8	*****	175.752	164.836	83.895	12.859	.632	.495	.329	.000
	.000	95.1%	89.4%	68.4%	*****	*****	*****	*****	*****
S/DEPTH=.7	*****	159.493	159.814	87.328	10.440	.938	.380	.221	.000
	.000	94.8%	89.2%	69.8%	*****	*****	*****	*****	*****
S/DEPTH=.6	*****	148.092	155.185	90.009	15.825	1.179	.306	.149	.000
	.000	94.2%	88.9%	70.9%	*****	*****	*****	*****	*****
S/DEPTH=.5	*****	135.239	151.042	92.067	17.008	1.370	.259	.100	.000
	.000	93.8%	88.7%	71.7%	164.4%	*****	*****	*****	*****
S/DEPTH=.4	*****	126.864	147.554	93.610	17.983	1.517	.229	.067	.000
	.000	93.4%	88.5%	72.3%	149.1%	*****	*****	*****	*****
S/DEPTH=.3	*****	120.227	144.777	94.722	18.746	1.628	.211	.046	.000
	.000	93.0%	88.3%	75.7%	138.2%	*****	*****	*****	*****
S/DEPTH=.2	*****	115.719	142.761	95.471	19.294	1.705	.201	.033	.000
	.000	92.8%	88.2%	73.0%	131.0%	*****	*****	*****	*****
S/DEPTH=.1	*****	113.056	141.540	95.902	19.623	1.750	.195	.026	.000
	.000	92.6%	88.1%	71.1%	126.8%	*****	*****	*****	*****
S/DEPTH=.0	*****	112.174	141.131	95.043	19.733	1.765	.194	.024	.000
	.000	92.6%	88.0%	73.2%	125.5%	*****	*****	*****	*****

TABLE IV. DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD... DEFINED IN EQUATION (24)

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CASE 3=0

TABLE V=DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.922	.460	.154	.015	.064	.077	.078	.078	.078
	45.8%	7.1%	205.3%	*****	601.1%	269.1%	11.9%	393.0%	544.3%
SURFACE	535.366	165.093	27.110	1.607	-1.607	-2.768	-2.886	-2.902	-2.882
S/DEPTH=1.7	59.3%	27.4%	596.9%	*****	*****	*****	*****	*****	*****
S/DEPTH=1.6	100.0%								
S/DEPTH=1.5	445.675								
S/DEPTH=1.4	100.0%								
S/DEPTH=1.3	382.798								
S/DEPTH=1.2	100.0%								
S/DEPTH=1.1	34.1%								
S/DEPTH=1.0	286.246								
S/DEPTH=.9	29.0%								
S/DEPTH=.8	248.421								
S/DEPTH=.7	215.623								
S/DEPTH=.6	21.1%								
S/DEPTH=.5	186.820								
S/DEPTH=.4	17.6%								
S/DEPTH=.3	161.206								
S/DEPTH=.2	14.4%								
S/DEPTH=.1	136.147								
S/DEPTH=.0	11.5%								
S/DEPTH=.9	9.0%								
S/DEPTH=.8	7.765								
S/DEPTH=.7	7.08%								
S/DEPTH=.6	4.9%								
S/DEPTH=.5	3.4%								
S/DEPTH=.4	40.334								
S/DEPTH=.3	40.271								
S/DEPTH=.2	45.1%								
S/DEPTH=.1	30.593								
S/DEPTH=.0	1.4%								
S/DEPTH=.9	15.208								
S/DEPTH=.8	1.4%								
S/DEPTH=.7	1.4%								
S/DEPTH=.6	1.4%								
S/DEPTH=.5	1.4%								
S/DEPTH=.4	1.4%								
S/DEPTH=.3	1.4%								
S/DEPTH=.2	1.4%								
S/DEPTH=.1	1.4%								
S/DEPTH=.0	1.4%								

CASE 3=D

TABLE 1= DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)									
THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.922	.460	.154	.015	.064	.077	.078	.078	.078
	45.8%	7.1%	205.3%	*****	601.1%	269.1%	11.9%	393.0%	544.3%
SURFACE	.000	242.445	174.736	99.673	15.668	1.182	.298	.142	.000
	*****	95.1%	86.4%	61.0%	262.8%	*****	*****	*****	*****
S/DEPTH=1.7	.000								

S/DEPTH=1.6	.000								

S/DEPTH=1.5	.000								

S/DEPTH=1.4	.000								

S/DEPTH=1.3	.000	223.967							
	*****	95.0%							
S/DEPTH=1.2	.000	194.369							
	*****	94.7%							
S/DEPTH=1.1	.000	168.237	171.259						
	*****	94.4%	86.9%						
S/DEPTH=1.0	.000	145.069	153.520	89.816					
	*****	94.2%	88.8%	70.9%					
S/DEPTH= .9	.000	124.420	136.263	82.121	15.134	1.176	.269	.121	.000
	*****	93.9%	88.7%	71.4%	167.8%	*****	*****	*****	*****
S/DEPTH= .8	.000	105.899	119.621	73.940	13.936	1.131	.211	.081	.000
	*****	93.6%	88.6%	71.8%	157.9%	*****	*****	*****	*****
S/DEPTH= .7	.000	89.162	103.291	65.312	12.569	1.052	.168	.054	.000
	*****	93.3%	88.5%	72.2%	149.7%	*****	*****	*****	*****
S/DEPTH= .6	.000	73.905	87.546	59.499	11.054	.946	.134	.035	.000
	*****	93.2%	88.4%	72.5%	*****	*****	*****	*****	*****
S/DEPTH= .5	.000	59.859	72.240	47.391	9.411	.818	.106	.023	.000
	*****	93.0%	88.3%	72.7%	*****	*****	*****	*****	*****
S/DEPTH= .4	.000	46.781	57.316	38.103	7.659	.673	.082	.015	.000
	*****	92.8%	88.2%	72.9%	*****	*****	*****	*****	*****
S/DEPTH= .3	.000	34.452	42.706	28.683	5.821	.516	.060	.009	.000
	*****	92.7%	88.1%	73.0%	*****	*****	*****	*****	*****
S/DEPTH= .2	.000	22.670	28.335	19.171	3.917	.349	.039	.005	.000
	*****	92.6%	88.1%	73.1%	*****	*****	*****	*****	*****
S/DEPTH= .1	.000	11.247	14.127	9.600	1.970	.176	.019	.002	.000
	*****	*****	88.1%	*****	*****	*****	*****	*****	*****
S/DEPTH= .0	.000	*****	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 3=D

TABLE VII=DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA ETA/HEIGHT	0 .922 45.8%	10.0 .460 205.3%	20.0 .154 205.3%	30.0 .015 *****	50.0 50.0 601.1%	75.0 100.0 269.1%	100.0 130.0 393.0%	180.0 180.0 544.3%
SURFACE	600.213	122.239	13.755	.558	.822	1.308	1.356	1.354
S/DEPTH=1.7	74.3%	21.3%	*****	*****	*****	*****	*****	*****
S/DEPTH=1.6	451.338	100.0%	*****	*****	*****	*****	*****	*****
S/DEPTH=1.5	353.780	100.0%	*****	*****	*****	*****	*****	*****
S/DEPTH=1.4	277.794	100.0%	*****	*****	*****	*****	*****	*****
S/DEPTH=1.3	210.084	109.867	13.437	.557	.822	1.308	1.356	1.354
S/DEPTH=1.2	170.735	90.231	11.712	.557	.822	1.308	1.356	1.354
S/DEPTH=1.1	132.980	71.231	9.919	.539	.822	1.308	1.356	1.354
S/DEPTH=1.0	102.707	58.596	8.132	.500	.822	1.308	1.356	1.354
S/DEPTH=.9	78.350	46.075	6.419	.439	.822	1.308	1.356	1.354
S/DEPTH=.8	58.731	35.441	5.064	.361	.822	1.308	1.356	1.354
S/DEPTH=.7	42.959	28.494	4.835	.361	.822	1.308	1.356	1.354
S/DEPTH=.6	30.354	19.064	3.425	.275	.822	1.308	1.356	1.354
S/DEPTH=.5	20.404	13.006	2.226	.190	.822	1.308	1.356	1.354
S/DEPTH=.4	12.719	8.204	1.267	.113	.822	1.308	1.356	1.354
S/DEPTH=.3	7.010	4.563	.568	.052	.822	1.308	1.356	1.354
S/DEPTH=.2	3.071	2.011	.143	.013	.822	1.308	1.356	1.354
S/DEPTH=.1	.761	.500	.000	.000	.822	1.308	1.356	1.354
S/DEPTH=.0	.000	.000	.000	.000	.822	1.308	1.356	1.354

TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (26)

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CASE 3=D

TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA ETA/HEIGHT	10.0 .922 45.8%	20.0 .460 205.3%	30.0 .154 *****	50.0 50.0 601.1%	75.0 100.0 269.1%	100.0 130.0 393.0%	180.0 180.0 544.3%
SURFACE	1.840	.947	.319	.030	.156	.159	.158
S/DEPTH=1.7	50.3%	4.6%	-173.4%	*****	593.2%	309.9%	39.9%
S/DEPTH=1.6	100.0%						
S/DEPTH=1.5	100.0%						
S/DEPTH=1.4	100.0%						
S/DEPTH=1.3	100.0%						
S/DEPTH=1.2	100.0%						
S/DEPTH=1.1	100.0%						
S/DEPTH=1.0	100.0%						
S/DEPTH=.9	100.0%						
S/DEPTH=.8	100.0%						
S/DEPTH=.7	100.0%						
S/DEPTH=.6	100.0%						
S/DEPTH=.5	100.0%						
S/DEPTH=.4	100.0%						
S/DEPTH=.3	100.0%						
S/DEPTH=.2	100.0%						
S/DEPTH=.1	100.0%						
S/DEPTH=.0	100.0%						

CASE 3=0

TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.023	.041	.053	.052	.022	.012	.029	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.043	.041	.034	.023	.005	.034	.039	.004	.038
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.002	.014	.006	.000	.002	.002	.002	.002	.002

CASE 3=0

TABLE XI=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.308 (=.19.5X)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.154 (=.225.7X)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.169 (=.168.9X)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.342 (=.194.4X)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.334 (=.195.7X)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.976 (=.4X)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.575 (=.167.4X)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.454 (=.221.9X)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.120 (=.295.5X)

CASE 3=D

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.031553	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.028948	STREAM FUNCTION	.004628
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.056189	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.043254	STREAM FUNCTION	.017961
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.0407134	STREAM FUNCTION	.074697
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.020545	STREAM FUNCTION	.0308594

CASE 4aA

8TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/g, 28316) * T^2$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .003902 DPT/LO = .020000
 H/DPT = .195117
 L/LO = .358594 PSI/(G*H*T) = -.001206

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.633424e+01 X(2)/(H*T*G) = -.126001e+01
 X(3)/(H*T*G) = -.249362e+02 X(4)/(H*T*G) = -.061943e+03
 X(5)/(H*T*G) = -.789062e+04 X(6)/(H*T*G) = -.120627e+04
 X(7)/(H*T*G) = -.154178e+05 X(8)/(H*T*G) = -.126902e+06

CASE 40A

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA ETA/HEIGHT	0 30.7%	.722 30.7%	.682 27.8%	.575 18.3%	.431 11.4%	50.0 119.8%	50.0 100.0	75.0 57.3%	130.0 43.8%	180.0 27.8%
SURFACE	13.481	12.697	10.620	7.868	2.545	-1.675	3.642	4.704	4.903	82.4%
S/DEPTH=1.1	32.0%	28.9%	19.0%	8.7%	130.4%	240.2%	57.0%	46.0%	45.9%	82.5%
S/DEPTH=1.0	31.0%	28.1%	18.7%	7.86	125.5%	247.4%	56.9%	45.9%	45.9%	82.5%
S/DEPTH=.9	29.4%	26.7%	17.6%	7.6%	113.8%	247.4%	56.9%	45.9%	45.9%	82.5%
S/DEPTH=.8	28.0%	25.4%	16.7%	7.6%	104.1%	257.2%	56.5%	44.9%	44.9%	80.9%
S/DEPTH=.7	26.6%	24.2%	15.8%	7.7%	97.1%	267.1%	56.2%	44.0%	44.0%	79.4%
S/DEPTH=.6	25.1%	23.1%	15.1%	7.7%	91.2%	276.9%	56.0%	43.3%	43.3%	78.2%
S/DEPTH=.5	24.5%	22.1%	14.4%	7.410	86.5%	286.2%	55.7%	42.7%	42.7%	77.1%
S/DEPTH=.4	23.7%	21.3%	13.6%	7.363	82.0%	294.6%	55.3%	42.1%	42.1%	76.3%
S/DEPTH=.3	22.9%	20.7%	13.4%	7.326	80.1%	301.7%	55.4%	41.7%	41.7%	75.6%
S/DEPTH=.2	22.4%	20.1%	13.0%	7.299	78.2%	307.1%	55.3%	41.5%	41.5%	75.1%
S/DEPTH=.1	22.0%	19.6%	12.7%	7.283	77.1%	310.5%	55.2%	41.3%	41.3%	74.9%
S/DEPTH=.0	21.7%	19.5%	12.5%	7.278	76.7%	311.7%	55.2%	41.2%	41.2%	74.8%

CASE 4-A

TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)									
ETA/HEIGHT=	0.722	0.682	0.575	0.431	0.300	0.146	0.089	0.204	0.266
THETA =	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0
SURFACE	2.417	4.170	4.968	4.360	2.419	1.098	0.259	0.000	0.000
S/DEPTH=1.1	75.2X	71.8X	65.6X	41.2X	28.6X	176.5X	618.8X	*****	*****
S/DEPTH=1.0	74.2X	71.4X	41.499	41.228	2.224	1.036	0.248	0.000	0.000
S/DEPTH= .9	73.4X	70.5X	65.1X	43.1X	22.82X	167.3X	530.5X	*****	*****
S/DEPTH= .8	72.8X	69.9X	64.6X	42.9X	1.984	0.931	0.223	0.000	0.000
S/DEPTH= .7	71.7X	68.9X	63.6X	42.6X	21.3X	163.6X	0.198	0.000	0.000
S/DEPTH= .6	71.3X	68.5X	62.9X	42.4X	20.5X	160.3X	0.171	0.000	0.000
S/DEPTH= .5	70.9X	68.1X	62.9X	42.1X	19.9X	157.8X	0.144	0.000	0.000
S/DEPTH= .4	70.6X	67.8X	62.8X	42.0X	19.3X	155.3X	0.116	0.000	0.000
S/DEPTH= .3	70.4X	67.6X	62.8X	41.8X	18.9X	153.4X	0.088	0.000	0.000
S/DEPTH= .2	70.2X	67.4X	62.8X	41.6X	18.5X	151.0X	0.059	0.000	0.000
S/DEPTH= .1	70.0X	67.2X	62.8X	41.4X	18.1X	148.6X	0.029	0.000	0.000
S/DEPTH= .0	69.8X	67.0X	62.8X	41.2X	17.7X	146.2X	0.000	0.000	0.000

TABLE III=DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

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CASE 40A

TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)									
THETA ETA/HEIGHT=	0 30.7%	10.0 27.8%	20.0 18.3%	30.0 14.6%	40.0 11.9%	50.0 9.8%	60.0 8.2%	70.0 7.0%	80.0 6.0%
SURFACE	78.129	67.388	40.921	11.017	25.221	25.492	13.853	3.890	1.798
S/DEPTH=.1	75.0%	71.6%	55.8%	48.7%	145.0%	112.5%	61.5%	*****	*****
S/DEPTH=.2	74.517	64.948	40.456						
S/DEPTH=.3	73.8%	70.5%	55.3%						
S/DEPTH=.4	66.071	57.827	36.633	10.911	24.156				
S/DEPTH=.5	73.2%	69.9%	54.9%	38.1%	144.2%				
S/DEPTH=.6	58.132	51.065	32.827	10.505	20.679				
S/DEPTH=.7	72.6%	69.4%	54.8%	28.8%	146.8%				
S/DEPTH=.8	50.653	44.622	29.051	9.849	17.556				
S/DEPTH=.9	72.2%	68.9%	54.7%	21.8%	148.5%				
S/DEPTH=1.0	43.515	38.456	25.110	8.990	14.738				
S/DEPTH=1.1	71.7%	68.5%	54.6%	16.8%	150.4%				
S/DEPTH=1.2	36.722	32.530	21.607	7.969	12.177				
S/DEPTH=1.3	71.3%	68.2%	54.5%	12.5%	152.2%				
S/DEPTH=1.4	30.201	26.806	17.941	6.818	9.831				
S/DEPTH=1.5	71.0%	67.9%	54.4%	9.4%	153.9%				
S/DEPTH=1.6	23.901	21.248	14.308	5.566	7.661				
S/DEPTH=1.7	70.7%	67.6%	54.3%	7.1%	155.2%				
S/DEPTH=1.8	17.775	15.622	10.704	4.238	5.628				
S/DEPTH=1.9	70.5%	67.4%	54.2%	5.4%	156.4%				
S/DEPTH=2.0	11.779	10.994	7.123	2.855	3.696				
S/DEPTH=2.1	70.3%	67.3%	54.1%	*****	*****				
S/DEPTH=2.2	55.868	55.231	35.558	1.426	1.831				
S/DEPTH=2.3	70.2%	67.2%	54.0%	*****	*****				
S/DEPTH=2.4	*****	*****	*****	*****	*****				
S/DEPTH=2.5	*****	*****	*****	*****	*****				
S/DEPTH=2.6	*****	*****	*****	*****	*****				
S/DEPTH=2.7	*****	*****	*****	*****	*****				
S/DEPTH=2.8	*****	*****	*****	*****	*****				
S/DEPTH=2.9	*****	*****	*****	*****	*****				
S/DEPTH=3.0	*****	*****	*****	*****	*****				
S/DEPTH=3.1	*****	*****	*****	*****	*****				
S/DEPTH=3.2	*****	*****	*****	*****	*****				
S/DEPTH=3.3	*****	*****	*****	*****	*****				
S/DEPTH=3.4	*****	*****	*****	*****	*****				
S/DEPTH=3.5	*****	*****	*****	*****	*****				
S/DEPTH=3.6	*****	*****	*****	*****	*****				
S/DEPTH=3.7	*****	*****	*****	*****	*****				
S/DEPTH=3.8	*****	*****	*****	*****	*****				
S/DEPTH=3.9	*****	*****	*****	*****	*****				
S/DEPTH=4.0	*****	*****	*****	*****	*****				
S/DEPTH=4.1	*****	*****	*****	*****	*****				
S/DEPTH=4.2	*****	*****	*****	*****	*****				
S/DEPTH=4.3	*****	*****	*****	*****	*****				
S/DEPTH=4.4	*****	*****	*****	*****	*****				
S/DEPTH=4.5	*****	*****	*****	*****	*****				
S/DEPTH=4.6	*****	*****	*****	*****	*****				
S/DEPTH=4.7	*****	*****	*****	*****	*****				
S/DEPTH=4.8	*****	*****	*****	*****	*****				
S/DEPTH=4.9	*****	*****	*****	*****	*****				
S/DEPTH=5.0	*****	*****	*****	*****	*****				
S/DEPTH=5.1	*****	*****	*****	*****	*****				
S/DEPTH=5.2	*****	*****	*****	*****	*****				
S/DEPTH=5.3	*****	*****	*****	*****	*****				
S/DEPTH=5.4	*****	*****	*****	*****	*****				
S/DEPTH=5.5	*****	*****	*****	*****	*****				
S/DEPTH=5.6	*****	*****	*****	*****	*****				
S/DEPTH=5.7	*****	*****	*****	*****	*****				
S/DEPTH=5.8	*****	*****	*****	*****	*****				
S/DEPTH=5.9	*****	*****	*****	*****	*****				
S/DEPTH=6.0	*****	*****	*****	*****	*****				
S/DEPTH=6.1	*****	*****	*****	*****	*****				
S/DEPTH=6.2	*****	*****	*****	*****	*****				
S/DEPTH=6.3	*****	*****	*****	*****	*****				
S/DEPTH=6.4	*****	*****	*****	*****	*****				
S/DEPTH=6.5	*****	*****	*****	*****	*****				
S/DEPTH=6.6	*****	*****	*****	*****	*****				
S/DEPTH=6.7	*****	*****	*****	*****	*****				
S/DEPTH=6.8	*****	*****	*****	*****	*****				
S/DEPTH=6.9	*****	*****	*****	*****	*****				
S/DEPTH=7.0	*****	*****	*****	*****	*****				
S/DEPTH=7.1	*****	*****	*****	*****	*****				
S/DEPTH=7.2	*****	*****	*****	*****	*****				
S/DEPTH=7.3	*****	*****	*****	*****	*****				
S/DEPTH=7.4	*****	*****	*****	*****	*****				
S/DEPTH=7.5	*****	*****	*****	*****	*****				
S/DEPTH=7.6	*****	*****	*****	*****	*****				
S/DEPTH=7.7	*****	*****	*****	*****	*****				
S/DEPTH=7.8	*****	*****	*****	*****	*****				
S/DEPTH=7.9	*****	*****	*****	*****	*****				
S/DEPTH=8.0	*****	*****	*****	*****	*****				
S/DEPTH=8.1	*****	*****	*****	*****	*****				
S/DEPTH=8.2	*****	*****	*****	*****	*****				
S/DEPTH=8.3	*****	*****	*****	*****	*****				
S/DEPTH=8.4	*****	*****	*****	*****	*****				
S/DEPTH=8.5	*****	*****	*****	*****	*****				
S/DEPTH=8.6	*****	*****	*****	*****	*****				
S/DEPTH=8.7	*****	*****	*****	*****	*****				
S/DEPTH=8.8	*****	*****	*****	*****	*****				
S/DEPTH=8.9	*****	*****	*****	*****	*****				
S/DEPTH=9.0	*****	*****	*****	*****	*****				
S/DEPTH=9.1	*****	*****	*****	*****	*****				
S/DEPTH=9.2	*****	*****	*****	*****	*****				
S/DEPTH=9.3	*****	*****	*****	*****	*****				
S/DEPTH=9.4	*****	*****	*****	*****	*****				
S/DEPTH=9.5	*****	*****	*****	*****	*****				
S/DEPTH=9.6	*****	*****	*****	*****	*****				
S/DEPTH=9.7	*****	*****	*****	*****	*****				
S/DEPTH=9.8	*****	*****	*****	*****	*****				
S/DEPTH=9.9	*****	*****	*****	*****	*****				
S/DEPTH=10.0	*****	*****	*****	*****	*****				

CASE 4=A

TABLE V=DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.722	.682	.575	.431	.146	.089	.204	.266	.278
	30.7%	27.8%	18.3%	9.4%	119.8%	244.6%	57.3%	43.8%	79.8%
SURFACE	156.300	140.742	102.846	60.692	8.778	1.565	11.149	20.386	22.446
S/DEPTH=1.1	46.6%	42.6%	28.7%	1.8%	279.2%	*****	80.0%	99.5%	200.0%
S/DEPTH=1.0	148.988	135.474	101.480						
S/DEPTH=1.0	44.0%	40.3%	27.8%						
S/DEPTH=1.0	131.971	120.226	90.558	55.538	8.591				
S/DEPTH=1.0	42.9%	39.2%	26.5%	1.8%	262.5%	1.348	10.359	19.325	21.347
S/DEPTH=.9	116.055	105.899	80.153	49.539	7.897	*****	80.4%	104.3%	215.8%
S/DEPTH=.8	42.0%	38.4%	25.9%	1.8%	252.0%	1.119	9.087	17.131	18.952
S/DEPTH=.8	101.071	92.357	70.198	43.696	7.149	*****	80.3%	103.3%	213.2%
S/DEPTH=.7	41.5%	37.7%	25.3%	1.9%	*****	*****	7.858	14.952	16.565
S/DEPTH=.7	86.873	79.480	60.628	37.914	6.355	9.21	80.2%	102.5%	211.2%
S/DEPTH=.6	40.6%	37.0%	24.9%	1.9%	*****	7.749	6.867	12.789	14.185
S/DEPTH=.6	73.532	67.160	51.387	32.340	5.520	*****	*****	101.8%	210.0%
S/DEPTH=.5	40.0%	36.5%	24.4%	2.0%	*****	5.597	5.508	10.638	11.812
S/DEPTH=.5	60.330	55.100	42.419	26.808	4.651	*****	*****	101.2%	208.8%
S/DEPTH=.4	39.6%	36.0%	24.1%	2.0%	*****	4.460	4.375	8.498	9.493
S/DEPTH=.4	47.764	43.811	33.674	21.353	3.753	*****	*****	100.7%	207.8%
S/DEPTH=.3	39.2%	35.7%	23.8%	2.1%	*****	3.335	3.263	6.366	7.079
S/DEPTH=.3	35.535	32.612	25.105	15.991	2.834	*****	*****	*****	*****
S/DEPTH=.2	38.9%	35.4%	23.6%	2.1%	*****	2.19	2.167	4.240	4.717
S/DEPTH=.2	23.555	21.625	16.665	10.615	1.898	*****	*****	*****	*****
S/DEPTH=.1	38.6%	35.2%	23.4%	2.1%	*****	.952	1.081	2.119	2.358
S/DEPTH=.1	11.737	10.778	8.311	5.300	.952	1.108	*****	*****	*****
S/DEPTH=.0	38.5%	35.1%	23.3%	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.0	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 4#A

TABLE VI=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (2a)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.722	.682	.575	.531	.46	.089	.204	.266	.278
	30.7%	27.8%	18.3%	8.4%	-119.8%	244.6%	57.3%	43.8%	79.8%
SURFACE	.000	38.728	67.673	82.161	75.384	43.754	20.365	4.872	.000
S/DEPTH=1.1	*****	75.5%	72.4%	66.8%	44.5%	20.6%	16.3%	611.4%	*****
	*****	37.193	66.699						
S/DEPTH=1.0	*****	74.5%	72.0%						
	*****	32.785	58.998	74.400	73.115				
S/DEPTH=.9	*****	73.8%	71.2%	66.3%	46.3%	40.239	19.224	4.660	.000
	*****	28.697	51.801	65.634	65.273	14.5%	15.45%	622.8%	*****
S/DEPTH=.8	*****	73.82%	70.8%	65.8%	46.1%	35.917	11.273	41.202	*****
	*****	24.882	45.039	57.305	57.594	13.6%	150.9%	610.1%	*****
S/DEPTH=.7	*****	72.6%	70.0%	65.2%	45.9%	31.537	15.256	3.723	.000
	*****	21.300	38.648	49.354	50.062	12.8%	147.7%	*****	*****
S/DEPTH=.6	*****	72.1%	69.6%	64.9%	45.7%	27.110	13.181	3.225	.000
	*****	17.915	32.572	41.727	42.661	12.2%	145.1%	*****	*****
S/DEPTH=.5	*****	71.6%	69.1%	64.5%	45.6%	22.845	11.058	2.712	.000
	*****	14.692	26.759	34.370	35.373	11.6%	142.9%	*****	*****
S/DEPTH=.4	*****	71.3%	68.8%	64.2%	45.4%	18.150	8.894	2.186	.000
	*****	11.600	21.159	27.236	28.182	11.2%	141.1%	*****	*****
S/DEPTH=.3	*****	70.9%	68.5%	63.9%	45.3%	13.632	6.699	1.649	.000
	*****	8.612	15.726	20.276	21.068	10.9%	139.7%	*****	*****
S/DEPTH=.2	*****	70.7%	68.2%	63.7%	45.2%	9.097	4.479	1.104	.000
	*****	5.700	10.416	13.446	14.013	10.6%	138.8%	*****	*****
S/DEPTH=.1	*****	70.5%	68.1%	63.6%	45.2%	4.551	2.243	.553	.000
	*****	2.838	5.188	6.702	6.997	10.5%	*****	*****	*****
S/DEPTH=.0	*****	*****	68.0%	63.5%	45.1%	.000	.000	.000	.000
	*****	.000	.000	.000	.000	*****	*****	*****	*****

TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

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TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

[illegible]

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TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA = ETA/HEIGHT =	0 30.7%	10.0 27.0%	20.0 18.3%	30.0 14.3%	40.0 11.9%	50.0 10.0%	60.0 8.5%	70.0 7.5%	80.0 6.5%	90.0 5.5%	100.0 4.5%	110.0 3.5%	120.0 2.5%	130.0 1.5%	140.0 0.5%	150.0 0.0%
SURFACE	1.444	1.364	1.149	.862	.62	.293	.179	.047	.533	.557						
S/DEPTH=1.1	31.9%	28.9%	19.4%	1.446	.6%	120.5%	252.6%	61.1%	44.2%	62.5%						
S/DEPTH=1.0	31.0%	28.2%	19.2%	1.146	.856	.297										
S/DEPTH=.9	29.6%	26.2%	18.3%	1.122	.9%											
S/DEPTH=.8	28.3%	25.0%	17.6%	1.099	.850	.311										
S/DEPTH=.7	27.1%	24.7%	16.9%	1.080	1.2%	103.7%	262.9%	61.3%	44.0%	62.6%						
S/DEPTH=.6	26.1%	23.7%	16.3%	1.062	1.4%	94.3%	276.6%	61.3%	42.9%	60.8%						
S/DEPTH=.5	24.3%	22.2%	15.2%	1.048	1.5%	86.6%	290.8%	61.4%	41.8%	58.3%						
S/DEPTH=.4	23.7%	21.6%	14.6%	1.035	1.6%	80.8%	305.2%	61.5%	41.1%	57.0%						
S/DEPTH=.3	23.0%	21.1%	14.5%	1.025	1.7%	76.1%	319.1%	61.1%	40.4%	56.8%						
S/DEPTH=.2	22.8%	20.8%	14.3%	1.011	1.8%	72.5%	332.0%	61.1%	39.8%	55.9%						
S/DEPTH=.1	22.6%	20.6%	14.2%	1.008	1.8%	69.8%	343.1%	61.1%	39.3%	55.2%						
S/DEPTH=.0	22.5%	20.5%	14.1%	1.007	1.8%	68.0%	351.8%	61.0%	39.0%	55.1%						

CASE 4=A

TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.001	.003	.003	.004	.002	.001	.003	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.008	.008	.007	.004	.001	.007	.008	.001	.008
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 4=A

TABLE XI-OVERALL WAVE PARAMETERS.. DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.359 (#3.2%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.433 (#15.6%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.448 (#12.5%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.860 (#14.0%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.835 (#15.1%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.948 (#1.0%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.891 (#12.4%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	1.211 (#17.2%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.376 (#21.9%)

CASE 4=A

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

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* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR
      DEFINED IN EQUATION (46)
      LINEAR      .002561      STREAM FUNCTION      .000000

(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR
      DEFINED IN EQUATION (47)
      LINEAR      .005760      STREAM FUNCTION      .000111

(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR
      DEFINED IN EQUATION (46)
      LINEAR      .003672      STREAM FUNCTION      .000000

(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR
      DEFINED IN EQUATION (47)
      LINEAR      .008448      STREAM FUNCTION      .000183

(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER
      DEFINED IN EQUATION (48)
      LINEAR      .102996      STREAM FUNCTION      .146703

(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER
      DEFINED IN EQUATION (49)
      LINEAR      .012115      STREAM FUNCTION      .048524

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CASE 4=B

10TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2$

HT = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .007772 DPT/LO = .020000
 H/DPT = .38580
 L/LO = .379687 PSI/(G*HT) = -.001938

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(HT*G) =	-.508835e01	X(2)/(HT*G) =	-.146785e01
X(3)/(HT*G) =	-.445503e02	X(4)/(HT*G) =	-.129346e02
X(5)/(HT*G) =	-.352846e03	X(6)/(HT*G) =	-.87575e04
X(7)/(HT*G) =	-.199291e04	X(8)/(HT*G) =	-.369381e05
X(9)/(HT*G) =	-.386228e06	X(10)/(HT*G) =	-.100394e06

CASE 4#B

TABLE 1-DIMENSIONLESS				HORIZONTAL				VELOCITY				COMPONENT FIELD...DEFINED IN EQUATION (21)							
THETA =				0				20.0				30.0				50.0			
ETA/HEIGHT =				8.10				.715				.294				.010			
				38.3%				31.1%				47.1%				*****			
SURFACE				15.839	13.833	9.560	5.371	9.560	8.8%	9.560	.086	2.312	2.986	3.234	3.234	2.986	3.234	3.234	3.234
S/DEPTH=1.3				41.3%	33.9%	8.8%	49.2%	8.8%		8.8%	*****	201.9%	47.6%	112.3%	173.7%	47.6%	112.3%	173.7%	173.7%
S/DEPTH=1.2				100.0%	13.298														
S/DEPTH=1.1				37.2%	31.2%	9.324	5.383	9.324	7.6%	9.324	.095	202.2%	47.8%	112.4%	173.7%	47.8%	112.4%	173.7%	173.7%
S/DEPTH=1.0				34.6%	28.8%	9.099	5.456	9.099	7.6%	9.099		205.3%	47.9%	111.5%	173.6%	47.9%	111.5%	173.6%	173.6%
S/DEPTH= .9				32.2%	26.6%	8.895	5.509	8.895	6.6%	8.895	*****	208.3%	47.9%	109.7%	171.0%	47.9%	109.7%	171.0%	171.0%
S/DEPTH= .8				30.0%	24.6%	8.712	5.546	8.712	4.6%	8.712	.495	211.1%	48.0%	108.1%	168.8%	48.0%	108.1%	168.8%	168.8%
S/DEPTH= .7				27.9%	22.7%	8.550	5.572	8.550	3.7%	8.550	.654	213.7%	48.0%	106.8%	166.9%	48.0%	106.8%	166.9%	166.9%
S/DEPTH= .6				26.0%	21.0%	8.410	5.588	8.410	3.7%	8.410	.788	216.0%	48.0%	105.7%	165.4%	48.0%	105.7%	165.4%	165.4%
S/DEPTH= .5				24.3%	19.5%	8.292	5.599	8.292	2.3%	8.292	.989	217.8%	48.0%	104.9%	164.3%	48.0%	104.9%	164.3%	164.3%
S/DEPTH= .4				22.8%	18.2%	8.195	5.605	8.195	1.7%	8.195	.057	219.2%	48.0%	103.9%	162.9%	48.0%	103.9%	162.9%	162.9%
S/DEPTH= .3				21.6%	17.1%	8.120	5.608	8.120	1.2%	8.120	.057	220.3%	48.0%	103.8%	162.7%	48.0%	103.8%	162.7%	162.7%
S/DEPTH= .2				20.6%	16.2%	8.067	5.610	8.067	.9%	8.067	.105	220.3%	48.0%	103.8%	162.7%	48.0%	103.8%	162.7%	162.7%
S/DEPTH= .1				20.0%	15.6%	8.035	5.611	8.035	.9%	8.035	.134	220.3%	48.0%	103.8%	162.7%	48.0%	103.8%	162.7%	162.7%
S/DEPTH= .0				19.5%	15.2%	8.024	5.611	8.024	.7%	8.024	.143	220.3%	48.0%	103.8%	162.7%	48.0%	103.8%	162.7%	162.7%
				19.4%	15.1%	.6%	5.611	.6%		.6%	.377.1%								

CASE 4=B

TABLE 11=DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD....DEFINED IN EQUATION (22)

THETA ETA/HEIGHT=	0 .810 38.3%	10.0 .715 31.1%	20.0 .506 7.2%	30.0 .294 =47.1%	50.0 .010 *****	75.0 =13.1 198.4%	100.0 =17.4 50.1%	130.0 =188 =103.6%	180.0 =190 =163.6%
SURFACE	***** .000	4.499 85.4%	6.469 80.2%	6.169 70.6%	3.405 20.1%	1.120 =185.0%	.321 *****	.040 *****	.000 *****
S/DEPTH=1.3	***** .000	***** .000	***** .000	***** .000	***** .000	***** .000	***** .000	***** .000	***** .000
S/DEPTH=1.2	***** .000	4.058 83.9%	5.720 79.3%	6.066 71.4%	3.392 29.1%	1.073 =153.3%	.312 *****	.039 *****	.000 *****
S/DEPTH=1.1	***** .000	3.545 83.0%	5.012 78.6%	5.375 70.8%	2.918 3.058	.972 =147.6%	.285 *****	.036 *****	.000 *****
S/DEPTH=1.0	***** .000	3.085 82.3%	4.364 78.0%	4.726 70.2%	2.381 3.533	.864 =142.8%	.255 *****	.032 *****	.000 *****
S/DEPTH=.9	***** .000	2.669 81.7%	3.766 77.4%	4.113 69.7%	2.041 3.01%	.751 =138.8%	.223 *****	.028 *****	.000 *****
S/DEPTH=.8	***** .000	2.291 81.1%	3.210 76.8%	3.533 69.2%	2.041 3.03%	.751 =138.8%	.223 *****	.028 *****	.000 *****
S/DEPTH=.7	***** .000	1.944 80.6%	2.690 76.4%	2.980 68.8%	1.701 3.05%	.633 =135.5%	.189 *****	.024 *****	.000 *****
S/DEPTH=.6	***** .000	1.622 80.1%	2.199 76.0%	2.450 68.5%	1.360 3.06%	.511 =132.9%	.153 *****	.020 *****	.000 *****
S/DEPTH=.5	***** .000	1.322 79.7%	1.732 75.7%	1.938 68.2%	1.020 3.07%	.366 =130.9%	.116 *****	.015 *****	.000 *****
S/DEPTH=.4	***** .000	1.038 79.4%	1.284 75.4%	1.441 68.0%	.680 3.07%	.259 =128.9%	.078 *****	.010 *****	.000 *****
S/DEPTH=.3	***** .000	.767 77.1%	.954 75.2%	.954 67.8%	.475 3.07%	.130 =126.9%	.039 *****	.005 *****	.000 *****
S/DEPTH=.2	***** .000	.506 78.9%	.848 75.2%	.422 67.1%	.340 3.07%	.000 =124.9%	.006 *****	.000 *****	.000 *****
S/DEPTH=.1	***** .000	.252 78.9%	.422 75.1%	.177 67.1%	.000 3.07%	.000 =122.9%	.000 *****	.000 *****	.000 *****
S/DEPTH=.0	***** .000	.000 78.9%	.000 75.1%	.000 67.1%	.000 3.07%	.000 =120.9%	.000 *****	.000 *****	.000 *****

CASE 4=B

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.810	.715	.506	.294	.010	.131	.174	.188	.190
	.38.3%	31.1%	7.2%	.47.1%	*****	198.4%	50.1%	103.6%	163.6%
SURFACE	.000	93.398	130.404	119.684	59.838	18.211	4.972	.598	.000
S/DEPTH=1.3	*****	91.0%	87.2%	79.4%	34.3%	=189.6%	*****	*****	*****
S/DEPTH=1.2	.000								
S/DEPTH=1.1	*****	85.207							
S/DEPTH=1.0	*****	90.1%	118.942	118.601					
S/DEPTH=.9	.000	86.2%	108.672	79.4%	59.891				
S/DEPTH=.8	*****	89.1%	85.1%	78.4%	35.6%	18.969	5.166	.621	.000
S/DEPTH=.7	.000	81.753	99.846	105.252	60.994				
S/DEPTH=.6	*****	87.0%	84.0%	77.5%	37.6%	=172.7%	*****	*****	*****
S/DEPTH=.5	.000	50.224	92.311	99.721	61.764	20.385	5.723	.704	.000
S/DEPTH=.4	*****	85.9%	82.9%	76.5%	39.42%	=150.9%	*****	*****	*****
S/DEPTH=.3	.000	51.603	85.939	94.919	62.281	21.624	6.220	.777	.000
S/DEPTH=.2	*****	84.8%	81.9%	75.6%	40.3%	=134.1%	*****	*****	*****
S/DEPTH=.1	.000	47.786	80.619	90.820	62.612	22.688	6.655	.841	.000
S/DEPTH=.0	*****	83.8%	80.9%	74.8%	41.82%	=121.2%	*****	*****	*****
S/DEPTH=.5	.000	44.687	76.262	87.399	62.810	23.581	7.026	.895	.000
S/DEPTH=.4	*****	82.8%	80.0%	74.0%	41.8%	=111.3%	*****	*****	*****
S/DEPTH=.3	.000	42.239	72.793	84.633	62.918	24.305	7.332	.939	.000
S/DEPTH=.2	*****	82.0%	79.2%	73.4%	42.3%	=103.7%	*****	*****	*****
S/DEPTH=.1	.000	40.387	70.154	82.504	62.969	24.864	7.571	.974	.000
S/DEPTH=.0	*****	81.2%	78.5%	72.8%	42.87%	=98.2%	*****	*****	*****
S/DEPTH=.5	.000	39.092	68.300	80.994	62.988	25.262	7.742	.999	.000
S/DEPTH=.4	*****	80.7%	78.0%	72.4%	42.9%	=94.4%	*****	*****	*****
S/DEPTH=.3	.000	38.326	67.200	80.093	62.993	25.499	7.845	1.014	.000
S/DEPTH=.2	*****	80.3%	77.7%	72.2%	43.0%	=92.2%	*****	*****	*****
S/DEPTH=.1	.000	38.072	66.835	79.793	62.994	25.578	7.880	1.019	.000
S/DEPTH=.0	*****	80.2%	77.6%	72.1%	43.1%	=91.5%	*****	*****	*****

CASE 4=B

TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.810	.715	.506	.294	.010	.131	.174	.188	.190
	58.3%	31.1%	7.2%	47.1%	*****	198.4%	50.1%	103.6%	163.6%
SURFACE	124.372	87.798	18.346	32.227	47.999	20.291	6.187	740	.125
	84.9%	79.0%	6.1%	147.5%	120.3%	105.6%	*****	*****	*****
S/DEPTH=1.3	122.436								
	100.0%								
S/DEPTH=1.2	109.800	81.824							
	82.9%	77.5%							
S/DEPTH=1.1	97.856	74.128	19.665	31.136					
	82.3%	77.1%	18.6%	146.3%					
S/DEPTH=1.0	86.601	66.526	20.002	146.428	47.741				
	81.8%	76.8%	27.3%	153.6%	116.2%				
S/DEPTH=.9	76.003	59.084	19.535	19.031	41.604	19.351	6.026	730	.128
	81.4%	76.5%	33.1%	161.9%	118.8%	105.4%	*****	*****	*****
S/DEPTH=.8	66.011	51.840	18.455	14.704	35.894	17.370	5.493	.682	.132
	81.0%	76.2%	37.1%	171.1%	119.4%	105.5%	*****	*****	*****
S/DEPTH=.7	56.564	44.805	16.908	11.249	30.568	15.321	4.911	.622	.129
	80.6%	76.0%	40.0%	181.3%	120.0%	105.6%	*****	*****	*****
S/DEPTH=.6	47.598	37.974	15.007	8.496	25.577	13.218	4.287	.550	.119
	80.3%	75.7%	42.0%	192.2%	120.5%	105.7%	*****	*****	*****
S/DEPTH=.5	39.042	31.333	12.840	6.304	20.875	11.072	3.626	.471	.105
	79.9%	75.5%	43.6%	203.6%	120.9%	105.8%	*****	*****	*****
S/DEPTH=.4	30.828	24.857	10.476	4.553	16.413	8.893	2.936	.385	.088
	79.7%	75.3%	44.7%	*****	121.3%	105.8%	*****	*****	*****
S/DEPTH=.3	22.685	18.519	7.969	3.137	12.142	6.689	2.223	.293	.068
	79.5%	75.1%	45.5%	*****	121.6%	105.9%	*****	*****	*****
S/DEPTH=.2	15.145	12.826	5.364	1.961	8.015	4.469	1.492	.197	.046
	79.4%	75.0%	*****	*****	121.8%	*****	*****	*****	*****
S/DEPTH=.1	7.539	6.125	2.697	.942	3.984	2.237	.749	.099	.023
	79.3%	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 4=B

TABLE V=DIMENSIONLESS DRAG FORCE COMPONENT FIELD....DEFINED IN EQUATION (25)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.810	.715	.506	.294	.010	.131	.174	.188	.190
	38.3%	31.1%	7.2%	.47.1%	*****	198.4%	50.1%	103.6%	163.6%
SURFACE	197.626	159.057	87.455	34.479	.746	53.776	7.770	9.467	9.671
S/DEPTH=1.3	53.6%	44.2%	8.4%	9.47%	*****	*****	*****	*****	*****
S/DEPTH=1.2	193.933								
S/DEPTH=1.1	100.0%								
S/DEPTH=1.0	170.724	144.756							
S/DEPTH=.9	46.3%	38.7%	78.842	34.063					
S/DEPTH=.8	44.2%	36.5%	6.3%	84.3%					
S/DEPTH=.7	131.268	112.491	70.360	31.123	*****	746			
S/DEPTH=.6	42.6%	35.0%	5.4%	81.6%	*****	.742			
S/DEPTH=.5	114.238	98.315	62.269	28.116	*****	.725			
S/DEPTH=.4	41.1%	33.6%	4.6%	79.5%	*****	.691			
S/DEPTH=.3	98.595	85.163	54.522	25.059	*****	.639			
S/DEPTH=.2	39.8%	32.4%	3.9%	77.7%	*****	.567			
S/DEPTH=.1	84.093	72.862	47.076	21.968	*****	.567			
S/DEPTH=.0	38.6%	31.3%	3.2%	76.2%	*****	.478			
S/DEPTH=.5	70.524	61.265	39.888	18.854	*****	.373			
S/DEPTH=.4	37.9%	30.4%	2.7%	70.9%	*****	.256			
S/DEPTH=.3	57.710	50.239	32.916	15.724	*****	.130			
S/DEPTH=.2	36.8%	29.6%	2.2%	73.9%	*****	.000			
S/DEPTH=.1	45.492	39.671	26.123	12.586	*****	.000			
S/DEPTH=.0	36.1%	29.0%	1.8%	73.2%	*****	.000			
S/DEPTH=.5	33.734	29.455	19.471	9.442	*****	.000			
S/DEPTH=.4	35.6%	28.5%	1.5%	*****	*****	.000			
S/DEPTH=.3	22.309	19.097	12.923	6.296	*****	.000			
S/DEPTH=.2	35.2%	28.1%	1.2%	*****	*****	.000			
S/DEPTH=.1	11.101	9.707	6.444	3.148	*****	.000			
S/DEPTH=.0	35.0%	*****	*****	*****	*****	.000			
S/DEPTH=.5	*****	.000	*****	*****	*****	.000			
S/DEPTH=.4	*****	*****	*****	*****	*****	.000			
S/DEPTH=.3	*****	*****	*****	*****	*****	.000			
S/DEPTH=.2	*****	*****	*****	*****	*****	.000			
S/DEPTH=.1	*****	*****	*****	*****	*****	.000			
S/DEPTH=.0	*****	*****	*****	*****	*****	.000			

CASE 4=B

TABLE V-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD, ... DEFINED IN EQUATION (26)

THETA	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.810	.506	.294	.010	.131	.174	.188	.190
	38.3%	31.1%	7.2%	-47.1%	*****	198.4%	50.1%	-103.6%
SURFACE	.000	69.668	103.441	103.362	62.631	21.970	6.433	.813
S/DEPTH=1.3	*****	86.6%	82.2%	73.9%	33.5%	-140.3%	-731.7%	*****
S/DEPTH=1.2	*****	62.731	85.1%	*****	*****	*****	*****	*****
S/DEPTH=1.1	*****	54.679	91.406	101.645	*****	*****	*****	*****
S/DEPTH=1.0	*****	84.4%	81.4%	75.1%	62.388	*****	*****	*****
S/DEPTH=.9	*****	47.470	80.038	90.144	41.0%	21.061	6.269	.797
S/DEPTH=.8	*****	83.7%	80.8%	74.6%	41.5%	-113.4%	-692.9%	*****
S/DEPTH=.7	*****	40.975	69.624	79.311	56.341	19.092	5.724	.731
S/DEPTH=.6	*****	83.1%	80.2%	74.2%	41.9%	-108.4%	-669.1%	*****
S/DEPTH=.5	*****	35.085	60.026	70.069	50.200	16.990	5.126	.657
S/DEPTH=.4	*****	82.5%	79.7%	73.7%	43.996	104.2%	*****	*****
S/DEPTH=.3	*****	29.700	51.123	59.343	42.2%	10.773	4.482	.576
S/DEPTH=.2	*****	82.0%	79.2%	73.4%	37.750	-100.7%	*****	*****
S/DEPTH=.1	*****	24.737	42.803	50.062	42.4%	12.458	3.797	.489
S/DEPTH=.0	*****	81.6%	78.8%	73.0%	42.4%	97.9%	*****	*****
S/DEPTH=.5	*****	20.119	34.967	41.156	31.478	10.062	3.079	.397
S/DEPTH=.4	*****	81.2%	78.4%	72.7%	42.6%	95.6%	*****	*****
S/DEPTH=.3	*****	15.778	27.521	32.560	25.191	2.333	*****	*****
S/DEPTH=.2	*****	80.8%	78.1%	72.5%	42.8%	93.8%	*****	*****
S/DEPTH=.1	*****	11.652	20.381	24.268	18.897	1.567	*****	*****
S/DEPTH=.0	*****	80.6%	77.9%	72.3%	42.9%	2.03	*****	*****
S/DEPTH=.2	*****	7.682	13.464	16.039	12.599	1.02	*****	*****
S/DEPTH=.1	*****	80.4%	77.7%	72.2%	43.0%	.787	*****	*****
S/DEPTH=.0	*****	3.816	6.696	7.999	6.299	*****	*****	*****
S/DEPTH=.0	*****	77.8%	77.6%	72.1%	43.0%	*****	*****	*****
S/DEPTH=.0	*****	.000	*****	*****	.000	*****	*****	*****
S/DEPTH=.0	*****	*****	*****	*****	*****	*****	*****	*****

TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

191

TABLE VIII—DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD....DEFINED IN EQUATION (28)

180.0
= .190
= 163.6%

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CASE 4=B

TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA =	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.810	.506	.294	.010	.131	.174	.188	.190
	38.3%	31.1%	7.2%	*****	198.4%	50.1%	103.6%	163.6%
SURFACE	1.627	1.434	1.014	.590	.020	.264	.348	.380
S/DEPTH=1.3	40.7%	33.6%	10.1%	43.5%	*****	208.3%	59.2%	171.1%
	100.0%							
S/DEPTH=1.2	1.541	1.392						
S/DEPTH=1.1	37.4%	31.6%	1.003	.593				
	35.3%	29.9%	9.9%	41.8%				
S/DEPTH=1.0	1.417	1.297	9.7%	.611	.021			
	33.4%	28.2%	9.7%	36.2%	*****			
S/DEPTH=.9	1.365	1.257	.977	.624	.049	.258	.347	.360
	31.6%	28.7%	9.5%	32.0%	*****	210.5%	59.9%	171.1%
S/DEPTH=.8	1.320	1.222	.965	.635	.074	.246	.343	.380
	29.9%	25.3%	9.1%	28.6%	*****	215.5%	60.6%	171.0%
S/DEPTH=.7	1.281	1.191	.954	.643	.095	.236	.340	.380
	28.3%	24.0%	8.8%	26.0%	.555.6%	220.4%	61.2%	168.1%
S/DEPTH=.6	1.248	1.165	.944	.650	.113	.226	.337	.380
	26.9%	22.8%	8.4%	24.0%	.448.9%	225.0%	61.8%	165.0%
S/DEPTH=.5	1.220	1.143	.935	.654	.128	.219	.335	.380
	25.7%	21.8%	8.1%	22.4%	.383.1%	229.2%	62.2%	163.3%
S/DEPTH=.4	1.198	1.125	.927	.658	.140	.212	.333	.380
	24.7%	20.9%	7.8%	21.2%	.340.4%	232.9%	62.6%	161.6%
S/DEPTH=.3	1.181	1.111	.922	.660	.149	.207	.331	.380
	23.9%	20.2%	7.6%	20.3%	.312.2%	235.9%	62.9%	160.5%
S/DEPTH=.2	1.169	1.102	.917	.662	.155	.204	.330	.380
	23.4%	19.7%	7.4%	19.7%	.294.3%	238.2%	63.1%	159.6%
S/DEPTH=.1	1.161	1.096	.915	.663	.159	.202	.329	.379
	23.0%	19.5%	7.3%	19.3%	.284.3%	239.6%	63.2%	159.0%
S/DEPTH=.0	1.159	1.094	.914	.663	.160	.201	.329	.379
	22.9%	19.4%	7.3%	19.2%	.281.1%	240.1%	63.3%	158.6%

CASE 4=B

TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.006	.012	.015	.016	.007	.005	.012	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.018	.017	.014	.009	.002	.014	.016	.001	.015
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.003	.002	.001	.001	.001	.000	.000	.000	.000

CASE 4-B

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.380 (.86%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.346 (.44.6%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.376 (.34.4%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.722 (.39.3%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.682 (.41.4%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.944 (.1.5%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.749 (.33.8%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.962 (.47.7%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.280 (.63.0%)

CASE 40B

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46)	LINEAR	.010455	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47)	LINEAR	.011583	STREAM FUNCTION	.000845
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46)	LINEAR	.016860	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47)	LINEAR	.017545	STREAM FUNCTION	.003140
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48)	LINEAR	.207956	STREAM FUNCTION	.323998
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49)	LINEAR	.025367	STREAM FUNCTION	.153634

CASE 4=C

12TH ORDER STREAM FUNCTION WAVE THEORY

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/b \cdot 28318) \cdot T^{**2}$

DEFINITIONS

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .011678 DPT/LO = .020000
 H/DPT = .583909
 L/LO = .401172 PSI/(G*H*T) = .002233

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) =	.410159e01	X(2)/(H*T*G) =	.136907e01
X(3)/(H*T*G) =	.502967e02	X(4)/(H*T*G) =	.181193e02
X(5)/(H*T*G) =	.627541e03	X(6)/(H*T*G) =	.207353e03
X(7)/(H*T*G) =	.648095e04	X(8)/(H*T*G) =	.189477e04
X(9)/(H*T*G) =	.510130e05	X(10)/(H*T*G) =	.277270e05
X(11)/(H*T*G) =	.797584e06	X(12)/(H*T*G) =	.000000

CASE 4=C

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)									
THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	41.8%	.667	.383	.173	*****	.041	.119	.141	.142
		26.1%	22.8%	150.12%	*****	208.4%	36.5%	171.3%	253.1%
SURFACE	18.056	13.533	7.316	3.128	*****	1.993	2.254	2.319	2.328
S/DEPTH=1.5	47.8%	31.4%	20.8%	159.5%	*****	218.7%	30.7%	191.5%	276.5%
S/DEPTH=1.4	100.0%								
S/DEPTH=1.3	100.0%								
S/DEPTH=1.2	15.341	12.813	7.300	3.130	*****	1.977	2.252	2.319	2.328
S/DEPTH=1.1	38.5%	27.6%	19.7%	153.6%	*****	217.0%	31.1%	100.0%	100.0%
S/DEPTH=1.0	14.274	12.098	7.222	3.341	*****	1.928	2.243	2.321	2.330
S/DEPTH=.9	31.4%	21.3%	19.3%	109.8%	*****	218.7%	31.5%	191.3%	276.5%
S/DEPTH=.8	22.0%	13.2%	7.134	109.8%	*****	218.7%	31.5%	191.3%	276.5%
S/DEPTH=.7	19.3%	11.0%	6.866	101.7%	*****	220.4%	31.9%	189.1%	275.9%
S/DEPTH=.6	10.461	9.393	6.787	120.4%	*****	21.844	2.226	2.322	2.331
S/DEPTH=.5	17.0%	8.9%	6.718	95.5%	*****	1.810	32.2%	186.6%	272.1%
S/DEPTH=.4	14.9%	7.2%	6.660	90.7%	*****	223.4%	32.5%	184.6%	270.0%
S/DEPTH=.3	13.2%	5.7%	6.613	87.1%	*****	224.8%	32.7%	182.9%	267.8%
S/DEPTH=.2	9.676	4.5%	6.580	84.5%	*****	225.6%	32.8%	181.6%	266.1%
S/DEPTH=.1	9.455	3.7%	6.559	82.7%	*****	226.4%	33.0%	180.7%	264.8%
S/DEPTH=.0	10.2%	3.2%	6.553	81.7%	*****	226.9%	33.0%	180.2%	264.1%
	10.0%	3.0%	6.553	81.4%	*****	227.0%	33.0%	180.0%	263.9%

CASE 4=C

TABLE II=DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	41.8%	.858	.667	.473	.3041	.119	.037	.0141	.0142
			26.1%	22.8%	150.2%	208.4%	36.5%	171.3%	253.1%
SURFACE	.000	6.448	7.138	5.522	2.200	.531	.101	.009	.000
S/DEPTH=1.5	*****	89.0%	80.6%	64.0%	30.9%	516.3%	*****	*****	*****
S/DEPTH=1.4	*****								
S/DEPTH=1.3	*****								
S/DEPTH=1.2	*****								
S/DEPTH=1.1	*****								
S/DEPTH=1.0	*****								
S/DEPTH=.9	*****								
S/DEPTH=.8	*****								
S/DEPTH=.7	*****								
S/DEPTH=.6	*****								
S/DEPTH=.5	*****								
S/DEPTH=.4	*****								
S/DEPTH=.3	*****								
S/DEPTH=.2	*****								
S/DEPTH=.1	*****								
S/DEPTH=.0	*****								

TABLE II-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)									
THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	
ETA/HEIGHT =	0.058	0.667	0.383	0.173	0.041	0.119	0.137	0.141	
	41.8%	26.1%	22.8%	10.2%	2.8%	20.8%	36.5%	71.3%	

SURFACE	147.890	148.618	105.769	36.864	8.806	.891	.128	.000
S/DEPTH=1.5	94.8%	89.7%	78.4%	.9%	=486.5%	*****	*****	*****
S/DEPTH=1.4								*****
S/DEPTH=1.3	129.804							*****
S/DEPTH=1.2	94.1%							*****
S/DEPTH=1.1	112.669	145.200						*****
S/DEPTH=1.0	93.3%	89.6%	105.726					*****
S/DEPTH=.9	98.344	131.698						*****
S/DEPTH=.8	92.5%	88.8%	79.0%					*****
S/DEPTH=.7	86.384	119.875	101.607					*****
S/DEPTH=.6	91.6%	87.9%	78.5%					*****
S/DEPTH=.5	76.423	109.612	97.540	38.850	9.075	.995	.130	.000
S/DEPTH=.4	90.6%	88.9%	78.0%	8.5%	=456.0%	*****	*****	*****
S/DEPTH=.3	68.160	100.788	93.679	41.063	9.944	1.460	.147	.000
S/DEPTH=.2	89.7%	86.0%	77.44%	14.66%	=401.5%	*****	*****	*****
S/DEPTH=.1	81.349	93.287	90.129	42.865	10.765	1.849	.168	.000
S/DEPTH=.0	68.7%	85.1%	76.8%	19.11%	=358.5%	*****	*****	*****
S/DEPTH=.9	55.791	87.003	86.963	44.313	11.511	2.172	.189	.000
S/DEPTH=.8	87.7%	84.2%	76.2%	22.68%	=325.0%	*****	*****	*****
S/DEPTH=.7	51.327	81.843	84.123	45.456	12.165	2.436	.208	.000
S/DEPTH=.6	86.7%	83.3%	75.7%	25.12%	=299.0%	*****	*****	*****
S/DEPTH=.5	47.831	77.729	81.966	46.335	12.714	2.648	.225	.000
S/DEPTH=.4	85.9%	82.6%	75.2%	27.1%	=279.4%	*****	*****	*****
S/DEPTH=.3	45.267	77.595	80.189	46.983	13.149	2.810	.238	.000
S/DEPTH=.2	85.2%	81.0%	74.8%	28.5%	=265.1%	*****	*****	*****
S/DEPTH=.1	43.381	73.392	78.912	47.427	13.463	2.925	.248	.000
S/DEPTH=.0	84.6%	81.5%	74.5%	29.5%	=255.5%	*****	*****	*****
S/DEPTH=.9	42.305	71.084	78.143	47.687	13.653	2.973	.254	.000
S/DEPTH=.8	84.3%	81.2%	74.3%	30.0%	=249.0%	*****	*****	*****
S/DEPTH=.7	41.950	70.651	77.886	47.772	13.717	3.015	.256	.000
S/DEPTH=.6	84.1%	81.1%	74.2%	30.2%	=247.7%	*****	*****	*****

TABLE 14-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)									
THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.05A	.667	.383	.173	.041	.119	.137	.141	.141
	41.9%	26.1%	=22.8%	=150.2%	*****	208.4%	36.5%	=171.3%	=253.1%
SURFACE	=149.696	=68.043	28.090	62.770	44.879	11.127	1.967	=.391	=.290
DEPTH=1.5	88.2%	74.7%	156.5%	121.9%	117.4%	90.7%	*****	*****	*****
DEPTH=1.4	100.0%								
DEPTH=1.3	127.741	=68.397							
DEPTH=1.2	115.879	74.0%	25.295						
DEPTH=1.1	103.666	85.8%	150.2%	62.640					
DEPTH=1.0	85.3%	76.5%	189.1%	119.4%					
DEPTH=.9	85.1%	76.9%	250.4%	51.356					
DEPTH=.8	84.7%	77.1%	*****	41.905	40.811	10.903	1.974	=.361	=.275
DEPTH=.7	84.3%	77.2%	*****	33.983	35.643	10.056	1.950	=.220	=.205
DEPTH=.6	84.0%	77.3%	*****	26.088	27.325	9.068	1.846	=.124	=.150
DEPTH=.5	83.6%	77.4%	*****	128.6%	115.5%	94.6%	*****	*****	*****
DEPTH=.4	83.3%	77.5%	*****	135.0%	125.926	7.964	1.679	=.080	=.109
DEPTH=.3	82.9%	77.6%	*****	136.9%	115.8%	95.1%	*****	*****	*****
DEPTH=.2	82.5%	77.7%	*****	133.0%	116.0%	67.67	1.463	=.021	=.077
DEPTH=.1	82.1%	77.8%	*****	127.86	16.887	5.496	1.211	=.001	=.054
DEPTH=.0	81.7%	77.9%	*****	135.0%	116.3%	*****	*****	*****	*****
DEPTH=.0	81.3%	78.0%	*****	136.6%	116.4%	4.170	.931	.011	=.036
DEPTH=.0	80.9%	78.1%	*****	136.6%	116.4%	2.802	.631	.012	=.022
DEPTH=.0	80.5%	78.2%	*****	136.6%	116.4%	*****	*****	*****	*****
DEPTH=.0	80.1%	78.3%	*****	136.6%	116.4%	1.407	.319	.007	=.010
DEPTH=.0	79.7%	78.4%	*****	136.6%	116.4%	*****	*****	*****	*****
DEPTH=.0	79.3%	78.5%	*****	136.6%	116.4%	*****	*****	*****	*****
DEPTH=.0	78.9%	78.6%	*****	136.6%	116.4%	*****	*****	*****	*****
DEPTH=.0	78.5%	78.7%	*****	136.6%	116.4%	*****	*****	*****	*****
DEPTH=.0	78.1%	78.8%	*****	136.6%	116.4%	*****	*****	*****	*****
DEPTH=.0	77.7%	78.9%	*****	136.6%	116.4%	*****	*****	*****	*****
DEPTH=.0	77.3%	79.0%	*****	136.6%	116.4%	*****	*****	*****	*****
DEPTH=.0	76.9%	79.1%	*****	136.6%	116.4%	*****	*****	*****	*****
DEPTH=.0	76.5%	79.2%	*****	136.6%	116.4%	*****	*****	*****	*****
DEPTH=.0	76.1%	79.3%	*****	136.6%	116.4%	*****	*****	*****	*****
DEPTH=.0	75.7%	79.4%	*****	136.6%	116.4%	*****	*****	*****	*****
DEPTH=.0	75.3%	79.5%	*****	136.6%	116.4%	*****	*****	*****	*****
DEPTH=.0	74.9%	79.6%	*****	136.6%	116.4%	*****	*****	*****	*****
DEPTH=.0	74.5%	79.7%	*****	136.6%	116.4%	*****	*****	*****	*****
DEPTH=.0	74.1%	79.8%	*****	136.6%	116.4%	*****	*****	*****	*****
DEPTH=.0	73.7%	79.9%	*****	136.6%	116.4%	*****	*****	*****	*****
DEPTH=.0	73.3%	80.0%	*****	136.6%	116.4%	*****	*****	*****	*****
DEPTH=.0	72.9%	80.1%	*****	136.6%	116.4%	*****	*****	*****	*****
DEPTH									

CASE 4=C

TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA =	10.0	20.0	30.0	50.0	75.0	100.0	150.0	180.0
ETA/HEIGHT =	.858	.667	.383	.173	.041	.119	.141	.142
	41.8%	26.1%	=22.6%	=150.2%	*****	208.4%	=171.3%	=253.1%
SURFACE	222.915	145.329	57.425	15.889	.096	=3.087	=4.534	=4.985
S/DEPTH=1.5	55.0%	33.3%	=51.0%	=57.1%	*****	*****	*****	*****
S/DEPTH=1.5	222.514							
S/DEPTH=1.4	192.592							
S/DEPTH=1.3	167.149	129.866						
S/DEPTH=1.2	145.254	114.367	56.174					
S/DEPTH=1.1	126.189	100.491	45.80%	15.879				
S/DEPTH=1.0	109.393	87.964	45.2%	=95.3%				
S/DEPTH=.9	94.424	70.553	45.746	45.746				
S/DEPTH=.8	80.930	60.069	45.5%	=281.2%				
S/DEPTH=.7	68.624	50.348	40.721	13.653	.059	=2.968	=4.432	=4.891
S/DEPTH=.6	57.272	47.253	45.9%	=269.6%	*****	*****	*****	*****
S/DEPTH=.5	46.679	38.664	46.3%	12.368	.029	=2.587	=3.927	=4.348
S/DEPTH=.4	36.681	30.477	46.7%	10.993	.015	=2.223	=3.426	=3.806
S/DEPTH=.3	27.135	22.598	26.395	9.544	.009	=1.876	=2.928	=3.262
S/DEPTH=.2	19.915	14.944	21.836	8.036	.007	=1.543	=2.435	=2.719
S/DEPTH=.1	8.906	7.436	17.364	6.481	.007	=1.320	=1.944	=2.175
S/DEPTH=.0	.000	.000	47.8%	*****	*****	*****	*****	*****
			47.8%	4.890	.007	=1.907	=1.456	=1.632
			48.0%	3.274	.006	=1.601	=1.069	=1.088
			4.2%	1.641	.003	=1.299	=.484	=.544
			*****	*****	*****	*****	*****	*****
			*****	.000	.000	.000	.000	.000
			*****	*****	*****	*****	*****	*****

CASE 4=C

TABLE VI=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.858	.667	.383	.173	.041	.119	.137	.141	.142
	41.8%	26.1%	=22.8%	=150.2%	*****	208.4%	36.5%	=171.5%	=253.1%
SURFACE	.000	99.710	116.105	96.594	43.434	11.154	2.153	.189	*****
S/DEPTH=1.5	*****	91.0%	84.6%	72.8%	5.3%	=373.0%	*****	*****	*****
S/DEPTH=1.4	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.3	*****	87.349	112.663	96.483	40.564	10.883	2.134	.187	*****
S/DEPTH=1.2	*****	89.7%	85.2%	75.7%	24.3%	=302.4%	*****	*****	*****
S/DEPTH=1.1	*****	88.2%	84.6%	76.3%	36.565	9.932	2.011	.173	*****
S/DEPTH=1.0	*****	86.3%	86.268	86.116	25.7%	=290.3%	*****	*****	*****
S/DEPTH=.9	*****	87.5%	84.1%	76.0%	33.365	8.896	1.845	.158	*****
S/DEPTH=.8	*****	87.0%	74.806	75.159	26.9%	=280.0%	*****	*****	*****
S/DEPTH=.7	*****	86.5%	83.5%	75.2%	28.004	=271.2%	1.643	.140	*****
S/DEPTH=.6	*****	85.2%	82.2%	74.9%	27.8%	=264.0%	*****	*****	*****
S/DEPTH=.5	*****	82.503	37.166	40.006	23.513	6.597	1.412	.120	*****
S/DEPTH=.4	*****	85.1%	81.9%	74.7%	28.6%	=264.0%	*****	*****	*****
S/DEPTH=.3	*****	84.7%	29.196	31.700	18.921	5.352	1.157	.098	*****
S/DEPTH=.2	*****	82.908	81.6%	74.5%	29.1%	*****	*****	*****	*****
S/DEPTH=.1	*****	84.5%	21.588	23.597	14.254	4.058	.884	.075	*****
S/DEPTH=.0	*****	84.2%	81.4%	74.4%	29.6%	*****	*****	*****	*****
	*****	8.485	14.246	15.646	9.532	2.726	.597	.051	*****
	*****	84.2%	81.2%	74.3%	29.9%	*****	*****	*****	*****
	*****	4.207	7.080	7.797	4.774	1.370	.301	.026	*****
	*****	*****	81.1%	74.2%	*****	*****	*****	*****	*****
	*****	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

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CASE 40C

TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD....DEFINED IN EQUATION (28)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.858	.667	.383	.173	.041	.119	.137	.141	.142
	41.8%	26.1%	22.8%	150.2%	*****	208.4%	36.5%	171.3%	253.1%
SURFACE	.000	84.870	80.428	56.093	20.370	4.824	.844	.077	.000
	*****	93.0%	85.5%	70.0%	22.2%	4.96.1%	*****	*****	*****
S/DEPTH=1.5	.000								

S/DEPTH=1.4	.000								

S/DEPTH=1.3	.000	68.237							
	*****	91.3%							
S/DEPTH=1.2	.000	53.100	76.257						
	*****	90.4%	86.6%						
S/DEPTH=1.1	.000	40.980	60.340	55.970					
	*****	89.6%	85.9%	77.1%					
S/DEPTH=1.0	.000	31.291	47.137	45.081					
	*****	88.9%	85.2%	76.8%					
S/DEPTH= .9	.000	23.564	36.240	35.620					
	*****	88.1%	84.5%	76.4%					
S/DEPTH= .8	.000	17.423	27.100	27.492					
	*****	87.4%	83.9%	76.0%					
S/DEPTH= .7	.000	12.569	20.024	20.598	11.134	2.692	.599	.051	.000
	*****	86.7%	83.3%	75.6%	25.1%	*****	*****	*****	*****
S/DEPTH= .6	.000	8.764	14.166	14.842	8.300	2.268	.468	.040	.000
	*****	86.1%	82.8%	75.3%	26.6%	*****	*****	*****	*****
S/DEPTH= .5	.000	5.819	9.523	10.134	5.831	1.617	.341	.029	.000
	*****	85.5%	82.3%	75.0%	27.7%	*****	*****	*****	*****
S/DEPTH= .4	.000	3.588	5.933	6.395	3.765	1.057	.227	.019	.000
	*****	81.9%	81.9%	74.7%	*****	*****	*****	*****	*****
S/DEPTH= .3	.000	1.961	3.268	3.557	2.132	.604	.131	.011	.000
	*****	85.3%	85.3%	74.7%	*****	*****	*****	*****	*****
S/DEPTH= .2	.000	.853	1.430	1.568	.962	.272	.059	.005	.000
	*****	82.1%	82.1%	74.7%	*****	*****	*****	*****	*****
S/DEPTH= .1	.000	.211	.354	.390	.239	.068	.015	.001	.000
	*****	.000	.000	.000	*****	*****	*****	*****	*****
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	.000	.000	.000	*****	*****	*****	*****	*****

CASE 4=C

TABLE IX=DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD....DEFINED IN EQUATION (29)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	41.8%	26.1%	22.8%	15.0,2%	*****	208.4%	36.5%	171.3%	253.1%
SURFACE	1.724	1.335	.764	.349	.086	.238	.273	.282	.283
S/DEPTH=1.5	45.8%	30.1%	17.2%	13.0,4%	*****	225.5%	54.1%	172.7%	266.7%
S/DEPTH=1.4	100.0%								
S/DEPTH=1.3	1.546	1.296							
S/DEPTH=1.2	38.9%	28.0%	.768						
S/DEPTH=1.1	36.3%	26.3%	15.6%	.349					
S/DEPTH=1.0	33.8%	24.6%	12.6%	13.5,5%					
S/DEPTH=.9	31.8%	22.9%	10.5%	11.1,5%					
S/DEPTH=.8	29.2%	21.2%	9.0%	9.4,8%	.065	.236	.273	.282	.283
					*****	227.1%	55.1%	100.0%	100.0%
S/DEPTH=.7	27.0%	19.6%	8.0%	8.2,8%	.041	.229	.271	.282	.283
					*****	231.0%	56.7%	172.5%	266.5%
S/DEPTH=.6	25.0%	18.1%	7.3%	7.3,8%	.019	.223	.270	.282	.283
					*****	234.7%	58.2%	169.8%	266.0%
S/DEPTH=.5	23.3%	16.7%	6.9%	6.7,2%	.001	.218	.269	.282	.283
					*****	238.12%	59.4%	166.7%	264.2%
					.014	.213	.268	.282	.284
S/DEPTH=.4	21.7%	15.5%	6.7%	6.2,1%	*****	241.3%	60.4%	164.1%	261.1%
					.026	.209	.267	.282	.284
					*****	244.1%	61.2%	162.0%	256.5%
S/DEPTH=.3	20.4%	14.5%	6.5%	5.8,4%	*****	246.3%	61.9%	160.8%	256.5%
					.035	.206	.267	.282	.284
					*****	248.9%	62.4%	159.3%	255.1%
S/DEPTH=.2	19.3%	13.7%	6.4%	5.5,7%	.042	.204	.266	.282	.284
					*****	247.9%	62.4%	159.3%	255.1%
					.046	.203	.266	.282	.284
S/DEPTH=.1	18.6%	13.1%	6.4%	5.3,9%	*****	248.9%	62.4%	158.8%	254.2%
					.047	.202	.266	.282	.284
					*****	249.3%	62.7%	156.4%	254.0%
S/DEPTH=.0	18.0%	12.8%	6.4%	5.2,9%	*****	249.3%	62.7%	156.4%	254.0%
					.047	.202	.266	.282	.284
					*****	249.3%	62.7%	156.4%	254.0%

CASE 4=C

TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.016	.030	.039	.040	.017	.010	.025	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.028	.026	.022	.015	.001	.020	.024	.001	.022
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.004	.001	.000	.001	.001	.000	.000	.000	.000

CASE 4=C

TABLE XI=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.401 (13.4%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.269 (85.6%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.307 (65.5%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.577 (74.9%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.545 (77.7%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.945 (91.6%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.611 (64.0%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.749 (90.0%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.204 (12.2%)

CASE 4=C

TABLE XI(CONT)=OVERALL WAVE PARAMETERS,.. DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10)	DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46)	.024835	STREAM FUNCTION	.000000
	LINEAR			
(11)	DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47)	.017689	STREAM FUNCTION	.000917
	LINEAR			
(12)	DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46)	.042575	STREAM FUNCTION	.000000
	LINEAR			
(13)	DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47)	.027579	STREAM FUNCTION	.003661
	LINEAR			
(14)	DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48)	.317183	STREAM FUNCTION	.525665
	LINEAR			
(15)	DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49)	.033243	STREAM FUNCTION	.278230
	LINEAR			

CASE 4=D

11TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .01555 DPT/LO = .02000
 H/DPT = .777657
 L/LO = .422461 PSI/(G*H*T) = -.002296

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.342654e01 X(2)/(H*T*G) = -.123281e01
 X(3)/(H*T*G) = -.499463e02 X(4)/(H*T*G) = -.201882e02
 X(5)/(H*T*G) = -.788821e03 X(6)/(H*T*G) = -.298069e03
 X(7)/(H*T*G) = -.998966e04 X(8)/(H*T*G) = -.343589e04
 X(9)/(H*T*G) = -.105353e04 X(10)/(H*T*G) = -.304491e05
 X(11)/(H*T*G) = -.465498e06

CASE 4=D

TABLE 1=DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.089	.583	.284	.101	.055	.101	.110	.112	.111
	43.7%	15.5%	65.4%	326.7%	681.4%	227.7%	21.4%	242.4%	346.7%
SURFACE	19.899	12.419	5.621	1.840	-.953	-1.636	-1.789	-1.799	-1.780
S/DEPTH=1.6	51.9%	24.1%	59.5%	347.1%	*****	245.1%	12.9%	-273.2%	-368.6%
S/DEPTH=1.5	100.0%								
S/DEPTH=1.4	16.533								
S/DEPTH=1.3	100.0%								
S/DEPTH=1.2	15.137	11.986							
S/DEPTH=1.1	36.7%	21.4%	5.627						
S/DEPTH=1.0	13.942	11.246	5.627						
S/DEPTH=.9	32.3%	17.3%	5.627						
S/DEPTH=.8	12.919	10.598	5.627						
S/DEPTH=.7	28.0%	13.6%	5.627						
S/DEPTH=.6	12.043	10.030	5.627						
S/DEPTH=.5	23.9%	10.0%	5.627						
S/DEPTH=.4	11.294	9.535	5.627						
S/DEPTH=.3	19.8%	6.8%	5.627						
S/DEPTH=.2	10.655	9.106	5.603						
S/DEPTH=.1	16.1%	3.3%	5.570						
S/DEPTH=.0	10.113	8.736	5.570						
S/DEPTH=.9	12.3%	3%	5.534						
S/DEPTH=.8	9.657	8.420	5.477						
S/DEPTH=.7	9.3%	2.5%	5.431						
S/DEPTH=.6	9.278	8.155	5.406						
S/DEPTH=.5	6.4%	4.9%	5.375						
S/DEPTH=.4	3.6%	7.0%	5.337						
S/DEPTH=.3	1.7%	8.8%	5.307						
S/DEPTH=.2	8.404	7.531	5.266						
S/DEPTH=.1	1.3%	11.3%	5.233						
S/DEPTH=.0	8.300	7.456	5.225						
S/DEPTH=.9	16.1%	12.1%	5.225						
S/DEPTH=.8	10.113	8.736	5.225						
S/DEPTH=.7	9.657	8.420	5.225						
S/DEPTH=.6	9.278	8.155	5.225						
S/DEPTH=.5	6.4%	4.9%	5.225						
S/DEPTH=.4	3.6%	7.0%	5.225						
S/DEPTH=.3	1.7%	8.8%	5.225						
S/DEPTH=.2	8.404	7.531	5.225						
S/DEPTH=.1	1.3%	11.3%	5.225						
S/DEPTH=.0	8.300	7.456	5.225						
S/DEPTH=.9	16.1%	12.1%	5.225						
S/DEPTH=.8	10.113	8.736	5.225						
S/DEPTH=.7	9.657	8.420	5.225						
S/DEPTH=.6	9.278	8.155	5.225						
S/DEPTH=.5	6.4%	4.9%	5.225						
S/DEPTH=.4	3.6%	7.0%	5.225						
S/DEPTH=.3	1.7%	8.8%	5.225						
S/DEPTH=.2	8.404	7.531	5.225						
S/DEPTH=.1	1.3%	11.3%	5.225						
S/DEPTH=.0	8.300	7.456	5.225						
S/DEPTH=.9	16.1%	12.1%	5.225						
S/DEPTH=.8	10.113	8.736	5.225						
S/DEPTH=.7	9.657	8.420	5.225						
S/DEPTH=.6	9.278	8.155	5.225						
S/DEPTH=.5	6.4%	4.9%	5.225						
S/DEPTH=.4	3.6%	7.0%	5.225						
S/DEPTH=.3	1.7%	8.8%	5.225						
S/DEPTH=.2	8.404	7.531	5.225						
S/DEPTH=.1	1.3%	11.3%	5.225						
S/DEPTH=.0	8.300	7.456	5.225						

CASE 4=D

TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA =	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.889	.583	.284	.101	.055	.101	.110	.112
	43.7%	15.5%	65.4%	326.7%	681.4%	227.7%	21.4%	242.4%
SURFACE	.000	7.078	6.715	4.578	1.430	.273	.046	.012
S/DEPTH=1.6	*****	89.1%	77.8%	53.4%	112.8%	*****	*****	*****
S/DEPTH=1.5	*****							
S/DEPTH=1.4	*****	6.539						
S/DEPTH=1.3	*****	88.2%						
S/DEPTH=1.2	*****	5.635						
S/DEPTH=1.1	*****	87.2%						
S/DEPTH=1.0	*****	86.4%	6.534					
S/DEPTH=.9	*****	4.178	80.1%					
S/DEPTH=.8	*****	85.6%	5.719					
S/DEPTH=.7	*****	3.586	79.3%					
S/DEPTH=.6	*****	84.8%	78.5%	4.186				
S/DEPTH=.5	*****	3.065	4.318	62.5%				
S/DEPTH=.4	*****	84.1%	77.7%	62.0%	1.364	.269	.045	.012
S/DEPTH=.3	*****	2.601	3.709	62.0%	55.0%	*****	*****	*****
S/DEPTH=.2	*****	83.4%	77.0%	61.6%	1.240	.249	.043	.010
S/DEPTH=.1	*****	82.7%	76.6%	61.2%	53.9%	*****	*****	*****
S/DEPTH=.0	*****	82.1%	75.8%	60.8%	1.106	.225	.039	.008
S/DEPTH=.9	*****	81.7%	75.4%	60.5%	1.054	.198	.035	.007
S/DEPTH=.8	*****	81.4%	75.0%	60.5%	.812	.169	.030	.005
S/DEPTH=.7	*****	81.3%	74.6%	60.5%	.656	.158	.025	.004
S/DEPTH=.6	*****	81.3%	74.6%	60.2%	.496	.105	.019	.003
S/DEPTH=.5	*****	80.9%	74.6%	60.0%	.42.6%	*****	*****	*****
S/DEPTH=.4	*****	80.7%	74.4%	59.8%	.332	.071	.013	.002
S/DEPTH=.3	*****	80.7%	74.4%	59.8%	.167	.035	.006	.001
S/DEPTH=.2	*****	80.7%	74.4%	59.8%	.000	.000	.000	.000
S/DEPTH=.1	*****	80.7%	74.4%	59.8%	.000	.000	.000	.000
S/DEPTH=.0	*****	80.7%	74.4%	59.8%	.000	.000	.000	.000

CASE 4=0

TABLE 11=DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.889	.583	.284	.101	.055	.010	.011	.012	.011
	43.7%	15.5%	65.4%	326.7%	681.4%	227.7%	21.4%	242.4%	348.7%
SURFACE	.000	167.815	145.513	89.352	22.551	4.026	.460	.489	.000
S/DEPTH=1.6	.000	95.6%	90.4%	76.4%	55.7%	.000	.000	.000	.000
S/DEPTH=1.5	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=1.4	.000	155.086	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=1.3	.000	95.15%	134.031	.000	.000	.000	.000	.000	.000
S/DEPTH=1.2	.000	94.9%	116.293	.000	.000	.000	.000	.000	.000
S/DEPTH=1.1	.000	94.3%	142.544	.000	.000	.000	.000	.000	.000
S/DEPTH=1.0	.000	93.6%	129.328	.000	.000	.000	.000	.000	.000
S/DEPTH=.9	.000	88.865	117.723	.000	.000	.000	.000	.000	.000
S/DEPTH=.8	.000	92.8%	89.0%	.000	.000	.000	.000	.000	.000
S/DEPTH=.7	.000	77.6%	88.2%	.000	.000	.000	.000	.000	.000
S/DEPTH=.6	.000	77.4%	85.398	.000	.000	.000	.000	.000	.000
S/DEPTH=.5	.000	82.971	82.971	.000	.000	.000	.000	.000	.000
S/DEPTH=.4	.000	87.4%	77.1%	.000	.000	.000	.000	.000	.000
S/DEPTH=.3	.000	80.595	60.595	.000	.000	.000	.000	.000	.000
S/DEPTH=.2	.000	76.7%	76.7%	.000	.000	.000	.000	.000	.000
S/DEPTH=.1	.000	78.381	30.914	.000	.000	.000	.000	.000	.000
S/DEPTH=.0	.000	76.4%	30.914	.000	.000	.000	.000	.000	.000
S/DEPTH=.9	.000	76.408	32.395	.000	.000	.000	.000	.000	.000
S/DEPTH=.8	.000	76.0%	32.395	.000	.000	.000	.000	.000	.000
S/DEPTH=.7	.000	75.734	33.562	.000	.000	.000	.000	.000	.000
S/DEPTH=.6	.000	75.734	33.562	.000	.000	.000	.000	.000	.000
S/DEPTH=.5	.000	74.7%	34.040	.000	.000	.000	.000	.000	.000
S/DEPTH=.4	.000	73.999	34.040	.000	.000	.000	.000	.000	.000
S/DEPTH=.3	.000	73.999	34.040	.000	.000	.000	.000	.000	.000
S/DEPTH=.2	.000	72.428	35.052	.000	.000	.000	.000	.000	.000
S/DEPTH=.1	.000	75.72%	35.413	.000	.000	.000	.000	.000	.000
S/DEPTH=.0	.000	71.839	35.413	.000	.000	.000	.000	.000	.000
S/DEPTH=.9	.000	75.1%	35.533	.000	.000	.000	.000	.000	.000
S/DEPTH=.8	.000	71.641	35.533	.000	.000	.000	.000	.000	.000
S/DEPTH=.7	.000	75.0%	35.533	.000	.000	.000	.000	.000	.000
S/DEPTH=.6	.000	75.0%	35.533	.000	.000	.000	.000	.000	.000
S/DEPTH=.5	.000	75.0%	35.533	.000	.000	.000	.000	.000	.000
S/DEPTH=.4	.000	75.0%	35.533	.000	.000	.000	.000	.000	.000
S/DEPTH=.3	.000	75.0%	35.533	.000	.000	.000	.000	.000	.000
S/DEPTH=.2	.000	75.0%	35.533	.000	.000	.000	.000	.000	.000
S/DEPTH=.1	.000	75.0%	35.533	.000	.000	.000	.000	.000	.000
S/DEPTH=.0	.000	75.0%	35.533	.000	.000	.000	.000	.000	.000

TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

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CASE 4=D

TABLE V=DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA = ETA/HEIGHT=	0 .889 43.7%	10.0 .583 15.5%	20.0 .284 -65.4%	30.0 .101 -326.7%	50.0 0.055 681.4%	75.0 0.101 227.7%	100.0 0.110 21.4%	130.0 0.112 -242.4%	180.0 0.111 -346.7%
SURFACE	242.396	119.800	37.004	7.722	0.254	-2.190	-2.844	-2.951	-2.919
S/DEPTH=1.6	55.0%	12.1%	-155.2%	*****	*****	*****	*****	*****	*****
S/DEPTH=1.5	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
S/DEPTH=1.4	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
S/DEPTH=1.3	133.295	98.412	4%	7.423	0.097	-1.374	-1.851	-1.939	-1.922
S/DEPTH=1.2	115.284	86.495	36.144	6.957	0.066	-1.374	-1.851	-1.939	-1.922
S/DEPTH=1.1	99.730	75.868	33.170	6.400	0.044	-1.374	-1.851	-1.939	-1.922
S/DEPTH=1.0	86.134	66.307	29.996	5.764	0.037	-1.374	-1.851	-1.939	-1.922
S/DEPTH=.9	74.106	57.628	26.803	5.060	0.029	-1.374	-1.851	-1.939	-1.922
S/DEPTH=.8	63.337	49.677	23.721	4.300	0.024	-1.374	-1.851	-1.939	-1.922
S/DEPTH=.7	53.577	42.326	20.639	3.493	0.019	-1.374	-1.851	-1.939	-1.922
S/DEPTH=.6	44.624	35.864	17.597	2.650	0.019	-1.374	-1.851	-1.939	-1.922
S/DEPTH=.5	36.310	28.997	14.595	1.781	0.011	-1.374	-1.851	-1.939	-1.922
S/DEPTH=.4	28.495	22.844	11.629	0.895	0.005	-1.374	-1.851	-1.939	-1.922
S/DEPTH=.3	21.058	16.931	8.693	0.000	0.000	-1.374	-1.851	-1.939	-1.922
S/DEPTH=.2	13.893	11.193	5.782	0.000	0.000	-1.374	-1.851	-1.939	-1.922
S/DEPTH=.1	6.903	5.568	2.887	0.000	0.000	-1.374	-1.851	-1.939	-1.922
S/DEPTH=.0	0.000	0.000	0.000	0.000	0.000	-1.374	-1.851	-1.939	-1.922

CASE 4=D

TABLE VII=DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.089	.583	.284	.101	.055	.227.7%	.21.4%	.242.4%	.348.7%
ETA/HEIGHT=	43.7%	15.5%	.05.4%	.326.7%	681.4%				
SURFACE	288.061	102.600	23.042	3.628	.179	.1.041	.1.309	.1.348	.1.330
S/DEPTH=1.6	70.8%	26.2%	.190.9%	*****	*****	*****	*****	*****	*****
S/DEPTH=1.5	213.858								
S/DEPTH=1.4	100.0%								
S/DEPTH=1.3	107.233								
S/DEPTH=1.2	100.8%								
S/DEPTH=1.1	91.356								
S/DEPTH=1.0	39.7%								
S/DEPTH=.9	73.144								
S/DEPTH=.8	33.5%								
S/DEPTH=.7	58.236								
S/DEPTH=.6	28.5%								
S/DEPTH=.5	61.936								
S/DEPTH=.4	23.7%								
S/DEPTH=.3	47.646								
S/DEPTH=.2	19.2%								
S/DEPTH=.1	36.208								
S/DEPTH=.0	14.9%								
S/DEPTH=.9	27.004								
S/DEPTH=.8	11.0%								
S/DEPTH=.7	19.717								
S/DEPTH=.6	7.4%								
S/DEPTH=.5	13.891								
S/DEPTH=.4	4.3%								
S/DEPTH=.3	9.314								
S/DEPTH=.2	5.794								
S/DEPTH=.1	3.188								
S/DEPTH=.0	1.395								
S/DEPTH=.9	.346								
S/DEPTH=.8	.000								
S/DEPTH=.7	.000								
S/DEPTH=.6	.000								
S/DEPTH=.5	.000								
S/DEPTH=.4	.000								
S/DEPTH=.3	.000								
S/DEPTH=.2	.000								
S/DEPTH=.1	.000								
S/DEPTH=.0	.000								

CASE 4=D

TABLE VIII=DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.889	.583	.284	.101	.055	.101	.110	.112	.111
	43.7%	15.5%	65.8%	326.7%	661.4%	227.7%	21.4%	242.4%	348.1%
SURFACE	.000	101.723	78.463	47.467	13.453	2.520	.401	.142	.000
S/DEPTH#1.6	*****	94.0%	84.7%	63.3%	49.16%	*****	*****	*****	*****
S/DEPTH#1.5	*****								
S/DEPTH#1.4	*****								
S/DEPTH#1.3	*****								
S/DEPTH#1.2	*****								
S/DEPTH#1.1	*****								
S/DEPTH#1.0	*****								
S/DEPTH# .9	*****								
S/DEPTH# .8	*****								
S/DEPTH# .7	*****								
S/DEPTH# .6	*****								
S/DEPTH# .5	*****								
S/DEPTH# .4	*****								
S/DEPTH# .3	*****								
S/DEPTH# .2	*****								
S/DEPTH# .1	*****								
S/DEPTH# .0	*****								

TABLE 1. DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD... DEFINED IN EQUATION (29)

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CASE 4=D

TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.035	.064	.081	.079	.032	.018	.042	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.039	.037	.031	.022	.001	.026	.033	.000	.028
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.029	.011	.011	.004	.001	.000	.002	.001	.000

CASE 4=D

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37) .422 (= 17.8%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38) .213 (= 134.8%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39) .254 (= 101.8%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40) .467 (= 116.9%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41) .447 (= 118.1%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42) .957 (= 6.6%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43) .505 (= 98.5%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44) .603 (= 136.5%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45) .156 (= 189.5%)

CASE 4=D

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.047488	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.024081	STREAM FUNCTION	.004832
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.085604	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.038507	STREAM FUNCTION	.028890
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.429150	STREAM FUNCTION	.732608
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.040894	STREAM FUNCTION	.286143

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5TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (g/b, 28318) * T ** 2$
 H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

HAVE CHARACTERISTICS

H/LO = .009752 DPT/LO = .050000
 H/DPT = .195032
 L/LO = .541016 PSI/(G*H*T) = .002188

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = .646213e01 X(2)/(H*T*G) = .541774e02
 X(3)/(H*T*G) = .383873e03 X(4)/(H*T*G) = .207385e04
 X(5)/(H*T*G) = .548613e06

TABLE 1=DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)									
THETA =		0		10.0		20.0		30.0	
ETA/HEIGHT=		.623		.603		.548		.465	
		19.7%		18.4%		14.3%		6.9%	
SURFACE	7.659	7.412	6.711	5.666	3.093	.072	-2.074	-3.844	-4.515
S/DEPTH=1.1	20.3%	18.9%	14.7%	7.1%	-25.4%	*****	50.8%	-15.2%	-33.1%
S/DEPTH=1.0	7.572	7.344	6.689						
S/DEPTH=.9	19.4%	18.2%	14.4%						
S/DEPTH=.8	7.920	6.991	6.390	5.468	3.072	.074			
S/DEPTH=.7	17.9%	16.7%	13.1%	6.4%	-23.97%	*****			
S/DEPTH=.6	6.874	6.682	6.127	5.272	3.029	.162	-1.997	-3.814	-4.298
S/DEPTH=.5	16.5%	15.4%	12.0%	5.8%	-21.97%	*****	50.1%	-15.2%	-33.1%
S/DEPTH=.4	6.591	6.413	5.898	5.100	2.988	.236	-1.892	-3.736	-4.237
S/DEPTH=.3	15.3%	14.3%	11.1%	5.2%	-20.1%	*****	48.8%	-14.5%	-31.7%
S/DEPTH=.2	6.349	6.182	5.699	4.950	2.950	.298	-1.801	-3.667	-4.183
S/DEPTH=.1	14.2%	13.2%	10.2%	4.7%	-18.97%	*****	47.5%	-15.8%	-30.2%
S/DEPTH=0	6.143	5.986	5.531	4.822	2.916	.350	-1.723	-3.606	-4.136
S/DEPTH=.5	13.2%	12.3%	9.4%	4.3%	-17.5%	*****	46.3%	-13.2%	-28.9%
S/DEPTH=.4	5.972	5.823	5.391	4.715	2.886	.391	-1.659	-3.555	-4.096
S/DEPTH=.3	12.4%	11.5%	8.8%	3.9%	-16.5%	*****	45.2%	-12.7%	-27.7%
S/DEPTH=.2	5.835	5.692	5.278	4.628	2.861	.424	-1.606	-3.513	-4.062
S/DEPTH=.1	11.7%	10.8%	8.2%	3.6%	-15.87%	*****	44.3%	-11.5%	-26.8%
S/DEPTH=0	5.730	5.592	5.190	4.561	2.841	.449	-1.566	-3.480	-4.037
S/DEPTH=.5	11.2%	10.4%	7.8%	3.4%	-15.12%	*****	43.6%	-11.0%	-26.1%
S/DEPTH=.4	5.656	5.521	5.129	4.514	2.827	.466	-1.538	-3.457	-4.018
S/DEPTH=.3	10.8%	10.0%	7.5%	3.2%	-14.7%	*****	43.0%	-11.8%	-25.6%
S/DEPTH=.2	5.611	5.478	5.092	4.485	2.818	.476	-1.521	-3.443	-4.007
S/DEPTH=.1	10.5%	9.8%	7.4%	3.1%	-14.45%	*****	42.7%	-11.7%	-25.3%
S/DEPTH=0	5.596	5.464	5.080	4.476	2.815	.480	-1.515	-3.436	-4.003
S/DEPTH=.5	10.5%	9.7%	7.3%	3.0%	-14.4%	*****	42.6%	-11.6%	-25.2%

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TABLE 1-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA ETA/HEIGHT	0 .623 19.7%	10.0 .603 18.4%	20.0 .548 14.3%	30.0 .465 6.9%	50.0 .257 24.8%	75.0 .007 *****	100.0 100.0 50.9%	130.0 130.0 50.9%	180.0 180.0 50.9%
SURFACE	.000	1.200	2.244	3.022	3.659	3.180	2.202	1.175	.000
S/DEPTH=1.1	*****	49.6%	47.2%	43.1%	29.7%	2.0%	37.8%	111.7%	*****
S/DEPTH=1.0	*****	1.173	2.225						
S/DEPTH=.9	*****	48.5%	46.8%						
S/DEPTH=.8	*****	1.030	1.956	2.694	3.443	3.175	2.051	.845	.000
S/DEPTH=.7	*****	47.1%	45.1%	41.7%	30.82	4.5%	34.1%	112.6%	*****
S/DEPTH=.6	*****	.898	1.707	2.357	3.032	2.826	1.822	.758	.000
S/DEPTH=.5	*****	45.9%	44.0%	40.7%	29.4%	4.5%	33.02%	108.82%	*****
S/DEPTH=.4	*****	.776	1.477	2.043	2.643	2.487	1.593	.668	.000
S/DEPTH=.3	*****	44.9%	43.0%	39.8%	28.7%	4.5%	31.9%	105.2%	*****
S/DEPTH=.2	*****	.662	1.262	1.748	2.273	2.156	1.364	.577	.000
S/DEPTH=.1	*****	44.0%	42.2%	39.0%	28.1%	4.4%	31.1%	102.4%	*****
S/DEPTH=.0	*****	.555	1.059	1.470	1.920	1.834	1.135	.483	.000
	*****	43.2%	41.4%	38.2%	27.6%	4.4%	30.82%	100.82%	*****
	*****	.454	.868	1.205	1.580	1.518	.908	.368	.000
	*****	42.6%	40.7%	37.6%	27.1%	4.3%	29.8%	.98.1%	*****
	*****	.358	.684	.951	1.251	1.207	.680	.292	.000
	*****	42.0%	40.2%	37.1%	26.7%	4.3%	29.4%	.86.7%	*****
	*****	.266	.508	.706	.931	.902	.453	.195	.000
	*****	41.6%	39.8%	36.7%	26.4%	4.3%	29.1%	.95.8%	*****
	*****	.176	.336	.467	.617	.599	.277	.098	.000
	*****	41.3%	39.5%	36.5%	26.2%	4.3%	28.9%	.88.9%	*****
	*****	.087	.167	.233	.307	.299	.000	.000	.000
	*****	40.8%	39.0%	36.3%	26.1%	4.2%	.000	.000	.000
	*****	.000	.000	.000	.000	.000	.000	.000	.000
	*****	40.0%	38.0%	35.0%	25.0%	4.0%	.000	.000	.000

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TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

THETA ETA/HEIGHT	0 19.7%	10.0 18.4%	20.0 14.3%	30.0 6.9%	50.0 4.65	75.0 .257	100.0 50.9%	130.0 177	180.0 32.6%
SURFACE	38.090	35.733	29.253	20.173	11.306	12.557	14.766	10.094	7.613
S/DEPTH=1.1	49.0%	46.6%	38.4%	19.2%	*****	124.1%	63.1%	56.4%	155.7%
S/DEPTH=1.0	37.6%	34.997	29.031	18.9%	*****	123.7%	13.557	9.729	7.420
S/DEPTH=.9	46.4%	44.3%	36.7%	16.497	1.921	10.627	63.9%	57.2%	161.5%
S/DEPTH=.8	45.4%	43.3%	36.0%	19.0%	391.1%	125.4%	11.794	8.673	6.670
S/DEPTH=.7	44.5%	42.5%	35.4%	17.260	299.6%	127.0%	63.6%	54.6%	155.6%
S/DEPTH=.6	43.7%	41.7%	34.8%	19.1%	245.4%	128.6%	10.121	52.7%	150.3%
S/DEPTH=.5	42.4%	40.5%	33.8%	19.1%	210.4%	130.0%	63.7%	50.9%	145.9%
S/DEPTH=.4	41.9%	40.0%	33.5%	19.0%	1.525	131.4%	63.6%	49.4%	142.3%
S/DEPTH=.3	41.5%	39.6%	33.2%	19.0%	*****	132.5%	63.6%	48.3%	139.4%
S/DEPTH=.2	41.2%	39.4%	33.0%	18.9%	*****	131.4%	63.5%	47.4%	137.2%
S/DEPTH=.1	41.1%	39.2%	32.8%	18.9%	*****	131.4%	63.5%	46.7%	137.2%
S/DEPTH=.0	41.1%	39.2%	32.8%	18.9%	*****	131.4%	63.5%	46.7%	137.2%

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TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA =	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.623	.508	.465	.257	.007	.177	.334	.377
	19.7%	14.3%	6.9%	24.8%	*****	50.9%	14.8%	32.6%
SURFACE	44.289	41.784	35.033	25.939	8.927	.139	2.807	15.603
S/DEPTH#1.1	28.1%	26.3%	20.3%	9.4%	41.4%	*****	26.4%	59.7%
S/DEPTH#1.0	43.043	40.821	34.724	20.248	7.519	.137	-2.536	15.153
S/DEPTH# .9	26.1%	24.5%	19.6%	8.2%	38.4%	*****	27.4%	54.3%
S/DEPTH# .8	37.593	35.688	30.450	17.9%	36.8%	*****	10.019	33.32
S/DEPTH# .7	24.7%	23.1%	17.9%	7.8%	6.614	.133	27.5%	62.7%
S/DEPTH# .6	32.645	31.018	26.536	17.5%	35.5%	*****	26.5%	51.3%
S/DEPTH# .5	23.7%	22.1%	17.1%	7.3%	34.4%	.126	26.1%	60.2%
S/DEPTH# .4	28.116	26.735	22.924	7.0%	4.872	.116	26.047	58.137
S/DEPTH# .3	22.8%	21.3%	16.4%	6.7%	33.5%	*****	25.5%	59.2%
S/DEPTH# .2	23.934	22.773	19.585	10.378	4.031	.102	25.07%	56.473
S/DEPTH# .1	22.8%	20.6%	15.8%	32.8%	3.205	.085	25.07%	56.473
	20.036	19.075	16.414	8.197	3.205	*****	25.07%	56.473
	21.4%	20.0%	15.3%	6.2%	3.205	*****	25.07%	56.473
	16.370	15.591	13.435	6.087	2.392	.066	25.07%	56.473
	20.5%	19.4%	14.9%	6.0%	3.17%	*****	25.07%	56.473
	12.687	12.279	10.592	4.029	1.589	.045	25.07%	56.473
	20.4%	19.0%	14.5%	5.9%	*****	*****	25.07%	56.473
	9.546	9.098	7.854	2.006	.793	.023	25.07%	56.473
	20.1%	18.7%	14.3%	*****	*****	*****	25.07%	56.473
	6.508	6.013	5.194	*****	*****	*****	25.07%	56.473
	19.5%	18.5%	14.1%	*****	*****	*****	25.07%	56.473
	3.138	2.991	2.585	*****	*****	*****	25.07%	56.473
	19.7%	18.3%	13.9%	*****	*****	*****	25.07%	56.473
	.000	.000	.000	*****	*****	*****	25.07%	56.473
	*****	*****	*****	*****	*****	*****	25.07%	56.473

CASE 5=A

TABLE V=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA =	0	10.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.623	.603	.548	.257	.007	.177	.334	.377
	19.7%	18.4%	14.3%	6.9%	*****	50.9%	14.6%	32.6%
SURFACE	*****	11.822	22.246	30.246	37.628	34.025	24.349	10.026
S/DEPTH=1.1	*****	50.2%	47.9%	44.1%	31.3%	4.7%	34.3%	109.8%
S/DEPTH=1.0	*****	11.555	22.051					*****
S/DEPTH=.9	*****	49.1%	47.5%					*****
S/DEPTH=.8	*****	10.126	19.357					*****
S/DEPTH=.7	*****	47.7%	45.8%					*****
S/DEPTH=.6	*****	8.816	16.879					*****
S/DEPTH=.5	*****	46.5%	44.7%					*****
S/DEPTH=.4	*****	7.608	14.585					*****
S/DEPTH=.3	*****	45.5%	43.8%					*****
S/DEPTH=.2	*****	6.485	12.448					*****
S/DEPTH=.1	*****	44.6%	42.9%					*****
S/DEPTH=.0	*****	5.434	10.442					*****
S/DEPTH=.9	*****	43.8%	42.1%					*****
S/DEPTH=.8	*****	4.443	8.544					*****
S/DEPTH=.7	*****	43.1%	41.5%					*****
S/DEPTH=.6	*****	3.499	6.734					*****
S/DEPTH=.5	*****	42.5%	40.9%					*****
S/DEPTH=.4	*****	2.593	4.992					*****
S/DEPTH=.3	*****	42.1%	40.5%					*****
S/DEPTH=.2	*****	1.713	3.301					*****
S/DEPTH=.1	*****	40.2%	37.5%					*****
S/DEPTH=.0	*****	.852	1.642					*****
S/DEPTH=.9	*****	40.0%	37.3%					*****
S/DEPTH=.8	*****	1.000	.000					*****
S/DEPTH=.7	*****	40.0%	37.3%					*****
S/DEPTH=.6	*****	1.000	.000					*****
S/DEPTH=.5	*****	40.0%	37.3%					*****
S/DEPTH=.4	*****	1.000	.000					*****
S/DEPTH=.3	*****	40.0%	37.3%					*****
S/DEPTH=.2	*****	1.000	.000					*****
S/DEPTH=.1	*****	40.0%	37.3%					*****
S/DEPTH=.0	*****	1.000	.000					*****

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TABLE VII= DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA =	10.0	20.0	30.0	50.0	75.0	100.0			
ETA/HEIGHT =	.603	.548	.465	.257	.007	.007			
	19.7%	16.4%	14.3%	6.9%	-24.8%	50.9%	130.0	180.0	
							=.334	=.377	
							=14.6%	=32.6%	
SURFACE	27.543	25.624	21.262	15.300	4.843	.048	=5.801	=7.432	
S/DEPTH=1.1	32.3%	30.2%	23.5%	11.2%	-47.3%	*****	=26.4%	=58.6%	
S/DEPTH=1.0	26.160	24.756	20.921						
S/DEPTH=.9	26.7%	24.2%	22.5%						
S/DEPTH=.8	20.432	19.362	16.431	12.363	4.354	.048			
S/DEPTH=.7	26.8%	25.1%	19.6%	9.7%	-41.9%	*****	=5.332	=6.984	
S/DEPTH=.6	15.728	14.922	12.709	8.623	3.469	.047	=29.0%	=67.9%	
S/DEPTH=.5	25.5%	23.8%	18.5%	8.6%	39.6%	.930	=4.121	=5.436	
S/DEPTH=.4	11.875	11.279	9.637	7.337	2.700	.044	=20.1%	=65.5%	
S/DEPTH=.3	24.2%	22.6%	17.6%	8.0%	-37.7%	*****	=27.3%	=63.5%	
S/DEPTH=.2	8.736	8.305	7.115	5.443	2.038	.038	=20.234	=61.7%	
S/DEPTH=.1	23.2%	21.6%	16.7%	7.5%	36.0%	.031	=26.7%	=20.050	
	6.200	5.899	5.066	3.891	1.479	.042	=26.1%	=1.301	
	22.2%	20.7%	16.0%	7.1%	-34.7%	*****	*****	*****	
	4.182	3.981	3.426	2.640	1.016	.024	=.539	=.727	
	21.5%	20.0%	15.3%	6.7%	*****	.016	*****	*****	
	2.614	2.489	2.145	1.658	.645	.0195	*****	*****	
	20.8%	19.4%	14.8%	6.4%	*****	*****	*****	*****	
	1.443	1.375	1.187	.919	.360	.010	*****	*****	
	20.3%	18.3%	14.3%	6.4%	*****	.004	*****	*****	
	.633	.603	.521	.404	.159	.004	=.238	=.322	
	*****	*****	*****	*****	*****	*****	*****	*****	
	.157	.150	.129	.100	.040	.001	*****	*****	
	*****	*****	*****	*****	*****	*****	*****	*****	
	.000	.000	.000	.000	.000	.000	*****	*****	
	*****	*****	*****	*****	*****	*****	*****	*****	

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TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.623	.603	.548	.465	.257	.007	.177	.534	.377
	19.7%	18.4%	14.3%	6.9%	24.8%	*****	50.9%	14.6%	32.6%
SURFACE									
S/DEPTH=1.1	*****	7.277	13.486	17.911	20.966	17.514	11.785	4.573	.000
	.000	54.1%	51.4%	47.0%	32.3%	2.3%	40.2%	117.4%	*****
S/DEPTH=1.0	*****	6.981	13.271	14.450	18.689	17.460	10.243	4.263	.000
	.000	52.1%	50.6%	45.0%	33.5%	7.1%	33.5%	119.9%	*****
S/DEPTH=.9	*****	5.080	10.440	11.227	14.666	11.928	8.093	3.418	.000
	.000	48.2%	46.8%	43.6%	32.5%	7.2%	31.6%	113.8%	*****
S/DEPTH=.8	*****	4.234	8.084	8.544	11.263	10.851	6.193	2.650	.000
	.000	47.2%	45.4%	42.3%	31.6%	7.3%	30.0%	108.6%	*****
S/DEPTH=.7	*****	3.206	4.539	6.326	8.407	8.203	4.547	1.967	.000
	.000	46.0%	44.2%	41.2%	30.8%	7.3%	28.7%	104.3%	*****
S/DEPTH=.6	*****	2.364	3.224	4.514	6.041	5.959	3.155	1.378	.000
	.000	44.8%	43.1%	40.2%	30.0%	7.3%	27.6%	100.7%	*****
S/DEPTH=.5	*****	1.134	2.180	3.058	4.116	4.098	2.018	.888	.000
	.000	43.8%	42.2%	39.3%	29.4%	7.3%	26.7%	95.2	.000
S/DEPTH=.4	*****	.709	1.365	1.918	2.594	2.602	1.134	.502	.000
	.000	41.4%	40.6%	38.6%	28.9%	7.3%	26.1%	.224	.000
S/DEPTH=.3	*****	.392	.754	1.062	1.441	1.454	.504	.056	.000
	.000	40.6%	39.1%	36.0%	28.5%	7.3%	.126	.000	.000
S/DEPTH=.2	*****	.172	.331	.466	.635	.643	.000	.000	.000
	.000	40.6%	39.1%	36.0%	.158	.160	.000	.000	.000
S/DEPTH=.1	*****	.043	.082	.116	.158	.160	.000	.000	.000
	.000	40.6%	39.1%	36.0%	.000	.000	.000	.000	.000
S/DEPTH=.0	*****	.000	.000	.000	.000	.000	.000	.000	.000
	.000	40.6%	39.1%	36.0%	.000	.000	.000	.000	.000

CASE 5=A

TABLE 1X=DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA =	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.623	.603	.548	.465	.257	.007	.334	.377
	10.7%	10.4%	14.5%	6.9%	-24.8%	*****	-14.6%	-32.6%
SURFACE	1.246	1.207	1.096	.930	.515	.015	.668	.754
S/DEPTH=.1	20.2%	18.9%	14.7%	7.3%	-24.7%	*****	-14.5%	-32.9%
S/DEPTH=.1	1.233	1.197	1.093					
S/DEPTH=.1	19.4%	18.2%	14.5%					
S/DEPTH=.1	1.177	1.144	1.049	.902	.514	.015	.663	.751
S/DEPTH=.1	18.0%	16.9%	13.3%	6.7%	-22.8%	*****	-14.5%	-33.4%
S/DEPTH=.1	1.128	1.098	1.010	.874	.511	.033	.648	.740
S/DEPTH=.1	16.8%	15.7%	12.4%	6.3%	-20.2%	*****	-13.5%	-31.5%
S/DEPTH=.1	1.085	1.057	.976	.849	.508	.049	.635	.730
S/DEPTH=.1	15.7%	14.7%	11.6%	6.0%	-18.4%	*****	-12.7%	-29.8%
S/DEPTH=.1	1.049	1.022	.946	.828	.504	.052	.624	.721
S/DEPTH=.1	14.7%	13.7%	10.9%	5.6%	-16.7%	*****	-12.0%	-28.4%
S/DEPTH=.1	1.017	.993	.921	.809	.501	.073	.614	.714
S/DEPTH=.1	13.8%	12.9%	10.2%	5.3%	-15.3%	-23.78%	.494%	.27.2%
S/DEPTH=.1	.991	.968	.900	.793	.498	.081	.607	.707
S/DEPTH=.1	13.0%	12.2%	9.6%	5.0%	-14.2%	-19.81%	.48.8%	.26.2%
S/DEPTH=.1	.970	.948	.883	.780	.495	.088	.601	.703
S/DEPTH=.1	12.4%	11.6%	9.2%	4.8%	-13.3%	-17.2.3%	.48.4%	.25.5%
S/DEPTH=.1	.954	.932	.869	.770	.493	.093	.596	.699
S/DEPTH=.1	11.9%	11.1%	8.8%	4.6%	-12.6%	-15.5.2%	.48.1%	.24.9%
S/DEPTH=.1	.942	.921	.860	.763	.492	.097	.594	.697
S/DEPTH=.1	11.5%	10.8%	8.5%	4.5%	-12.2%	-14.4.3%	.47.9%	.24.6%
S/DEPTH=.1	.935	.915	.854	.759	.491	.099	.593	.696
S/DEPTH=.1	11.3%	10.6%	8.4%	4.4%	-11.9%	-13.8.2%	.47.8%	.24.5%
S/DEPTH=.1	.933	.912	.853	.757	.490	.100	.591	.694
S/DEPTH=.1	11.2%	10.5%	8.3%	4.4%	-11.8%	-13.6.3%	.47.8%	.24.5%

CASE 5=a

TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION.... DEFINED IN EQ.(35)									
SURFACE	.000	.002	.005	.006	.007	.003	.002	.006	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION.... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION.... DEFINED IN EQ.(36)									
SURFACE	.003	.003	.003	.002	.000	.001	.002	.001	.001
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION.... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 5=a

TABLE XI=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.541 (1.8%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.078 (#4.6%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.488 (#3.4%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.966 (#4.0%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.866 (#4.4%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.896 (#.3%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.872 (#3.1%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	1.238 (#5.2%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.372 (#7.3%)

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TABLE XI(CONT) OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.004482	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.001692	STREAM FUNCTION	.000059
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.006863	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.002977	STREAM FUNCTION	.000126
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.112027	STREAM FUNCTION	.138051
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.030212	STREAM FUNCTION	.059116

CASE 5=B

7TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2$
 H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .019505 DPT/LO = .050000
 H/DPT = .390096
 L/LO = .566016 PSI/(G*H*T) = .003854

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = .581513E01 X(2)/(H*T*G) = .882370E02
 X(3)/(H*T*G) = .119908E02 X(4)/(H*T*G) = .134049E03
 X(5)/(H*T*G) = .105424E04 X(6)/(H*T*G) = .110024E06
 X(7)/(H*T*G) = .161493E06

CASE 5-B

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	160.0
ETA/HEIGHT=	30.1%	7.16	.673	.562	.420	.150	.077	.269	.284
		26.8%	16.4%	3.0%	114.1%	267.7%	55.7%	42.3%	75.8%
SURFACE	9.268	8.684	7.192	5.313	1.840	.894	2.220	2.987	3.142
S/DEPTH=1.2	31.9%	28.5%	17.18%	2.80%	115.3%	273.9%	54.2%	45.1%	77.9%
S/DEPTH=1.1	8.744	8.312	7.111						
S/DEPTH=1.0	27.8%	25.3%	16.9%						
S/DEPTH= .9	6.161	7.780	6.716	5.181					
S/DEPTH= .8	25.1%	22.7%	14.5%	2.1%	1.889				
S/DEPTH= .7	7.657	7.318	6.369	4.991	1.012%	289.5%	2.091	2.951	3.124
S/DEPTH= .6	22.8%	20.4%	12.8%	2.6%	1.958	324.0%	53.6%	44.9%	78.7%
S/DEPTH= .5	20.6%	18.3%	11.1%	3.1%	88.3%	367.4%	52.7%	43.0%	75.4%
S/DEPTH= .4	6.850	6.576	5.805	4.668	2.011	428	1.923	2.886	3.089
S/DEPTH= .3	18.5%	16.4%	9.6%	3.6%	78.4%	*****	51.9%	41.5%	72.5%
S/DEPTH= .2	6.534	6.285	5.580	4.535	2.051	*****	2.866	2.917	3.106
S/DEPTH= .1	16.6%	14.7%	8.3%	4.0%	70.7%	*****	51.1%	40.1%	70.1%
S/DEPTH= .0	6.270	6.040	5.390	4.420	2.080	*****	1.804	2.839	3.063
S/DEPTH= .5	15.0%	13.1%	7.1%	4.4%	64.7%	*****	50.4%	39.0%	68.2%
S/DEPTH= .4	6.052	5.839	5.232	4.323	2.102	*****	1.763	2.822	3.054
S/DEPTH= .3	13.6%	11.8%	6.0%	4.8%	60.0%	*****	49.9%	38.8%	66.7%
S/DEPTH= .2	5.878	5.678	5.106	4.245	2.117	*****	2.809	2.850	3.048
S/DEPTH= .1	12.4%	10.6%	5.2%	5.1%	56.4%	*****	49.4%	37.6%	65.6%
S/DEPTH= .0	5.746	5.555	5.009	4.184	2.128	*****	49.2%	37.2%	64.9%
S/DEPTH= .5	11.4%	9.8%	4.5%	5.4%	53.8%	*****	49.1%	37.1%	64.7%
S/DEPTH= .4	5.653	5.468	4.940	4.141	2.135	*****			
S/DEPTH= .3	10.7%	9.1%	4.0%	5.5%	52.0%	*****			
S/DEPTH= .2	5.597	5.416	4.899	4.115	2.138	*****			
S/DEPTH= .1	10.5%	8.7%	3.7%	5.7%	50.9%	*****			
S/DEPTH= .0	5.579	5.399	4.886	4.106	2.140	*****			
S/DEPTH= .5	10.3%	8.6%	3.6%	5.7%	50.5%	*****			

TABLE II-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

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TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

[illegible]

TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

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TABLE VI=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA ETA/HEIGHT	0 30.1%	10.0 26.6%	20.0 16.4%	30.0 10.0	40.0 3.0%	50.0 114.1%	60.0 150	75.0 267.7%	100.0 55.7%	130.0 42.3%	180.0 75.8%
SURFACE	.000	19.741	34.375	42.096	41.365	27.671	14.913	4.244	.000		
S/DEPTH=1.2	.000	70.1%	66.2%	59.7%	37.1%	17.6%	118.6%	380.6%	*****		
S/DEPTH=1.1	.000	18.051	33.466								
S/DEPTH=1.0	.000	67.3%	65.2%								
S/DEPTH=1.0	.000	15.608	29.056	38.608							
S/DEPTH=1.0	.000	65.6%	63.3%	59.0%							
S/DEPTH=1.0	.000	13.450	25.132	33.602							
S/DEPTH=1.0	.000	64.3%	62.0%	57.8%	38.517						
S/DEPTH= .9	.000	11.530	21.620	29.069	41.0%	25.693	14.593				
S/DEPTH= .8	.000	63.0%	60.7%	56.7%	33.876	106.7%	13.177	3.892	.000		
S/DEPTH= .7	.000	9.812	18.455	24.938	40.4%	22.842	13.177	390.9%	*****		
S/DEPTH= .7	.000	61.8%	59.6%	55.6%	39.8%	19.977	11.683	375.9%	*****		
S/DEPTH= .6	.000	60.7%	58.0%	54.7%	25.324	19.977	11.683	375.9%	*****		
S/DEPTH= .6	.000	6.847	12.945	17.637	21.353	17.109	10.125	363.4%	*****		
S/DEPTH= .5	.000	59.7%	57.6%	53.8%	38.8%	14.242	8.513	353.12%	*****		
S/DEPTH= .5	.000	5.546	10.507	14.362	17.517	14.242	8.513	2.583	.000		
S/DEPTH= .5	.000	58.9%	56.8%	53.1%	38.3%	13.3%	90.8%	353.12%	*****		
S/DEPTH= .4	.000	4.334	8.226	11.274	13.877	11.382	6.859	2.094	.000		
S/DEPTH= .4	.000	58.2%	56.2%	52.5%	38.0%	13.877	8.85%	353.12%	*****		
S/DEPTH= .3	.000	3.192	6.066	8.332	10.314	8.528	5.172	1.587	.000		
S/DEPTH= .3	.000	57.6%	55.6%	52.0%	37.7%	13.5%	86.7%	353.12%	*****		
S/DEPTH= .2	.000	2.101	3.996	5.096	6.832	5.681	3.461	1.066	.000		
S/DEPTH= .2	.000	55.3%	53.3%	51.7%	37.5%	2.33%	85.5%	353.12%	*****		
S/DEPTH= .1	.000	1.042	1.963	2.751	3.403	2.839	1.734	.535	.000		
S/DEPTH= .1	.000	55.3%	53.3%	51.7%	37.5%	2.839	1.734	.535	.000		
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000	.000		
S/DEPTH= .0	.000	55.3%	53.3%	51.7%	37.5%	2.839	1.734	.535	.000		

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TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THE TA ETA/HEIGHT	10.0 0.716 30.1%	20.0 0.562 16.8%	30.0 0.420 3.0%	50.0 0.150 114.1%	75.0 0.077 267.7%	100.0 0.196 55.7%	130.0 0.269 42.3%	180.0 0.284 75.8%
SURFACE	44.538	39.110	26.979	15.072	2.287	0.147	0.1653	0.3782
S/DEPTH=1.2	48.4%	43.8%	26.6%	8.2%	258.1%	0.000%	0.000%	0.000%
S/DEPTH=1.1	36.581	33.565	25.792	23.0%	13.078	7.6%	195.6%	195.6%
S/DEPTH=1.0	37.2%	34.0%	23.2%	20.297	1.725	0.101	0.159	0.159
S/DEPTH=0.9	28.367	26.121	20.297	18.4%	0.95%	0.056	0.845	0.845
S/DEPTH=0.8	33.9%	30.4%	18.4%	15.802	0.032	0.017	0.398	0.398
S/DEPTH=0.7	21.800	20.138	15.802	8.2%	1.081	0.009	0.247	0.247
S/DEPTH=0.6	31.4%	28.0%	16.4%	8.076	0.004	0.002	0.636	0.636
S/DEPTH=0.5	16.543	15.325	12.130	8.0%	0.803	0.001	0.355	0.355
S/DEPTH=0.4	29.1%	25.8%	14.6%	6.163	0.017	0.001	0.157	0.157
S/DEPTH=0.3	12.336	11.455	9.135	4.575	0.009	0.000	0.015	0.015
S/DEPTH=0.2	27.1%	23.8%	13.0%	10.0%	0.000	0.000	0.000	0.000
S/DEPTH=0.1	8.977	8.554	6.705	3.272	0.000	0.000	0.000	0.000
S/DEPTH=0.0	25.2%	22.1%	11.8%	1.395	0.000	0.000	0.000	0.000
	6.314	5.886	4.750	0.773	0.205	0.002	0.136	0.136
	23.6%	20.6%	10.4%	0.340	0.001	0.001	0.059	0.059
	4.226	3.946	3.199	0.084	0.033	0.000	0.015	0.015
	22.1%	19.3%	9.3%	0.000	0.000	0.000	0.000	0.000
	22.625	19.8%	1.896	0.000	0.000	0.000	0.000	0.000
	21.8%	18.2%	1.802	0.000	0.000	0.000	0.000	0.000
	1.443	1.350	1.101	0.000	0.000	0.000	0.000	0.000
	0.631	0.590	0.483	0.000	0.000	0.000	0.000	0.000
	0.156	0.146	0.120	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

[illegible]

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TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	71.6	.673	.562	.420	.150	.077	.196	.269	.284
	30.1%	26.8%	16.4%	-3.6%	-114.1%	267.7%	55.7%	-42.3%	-75.8%
SURFACE	1.431	1.345	1.123	.841	.300	-.154	-.392	-.538	-.569
S/DEPTH=.2	31.2%	27.9%	17.6%	-1.6%	-112.4%	270.8%	58.5%	-41.3%	-76.3%
S/DEPTH=.1	1.366	1.300	1.114						
S/DEPTH=.1	28.0%	25.4%	16.9%	.830					
S/DEPTH=.1	1.292	1.233	1.069						
S/DEPTH=.1	25.9%	23.5%	15.5%	-1.0%					
S/DEPTH=.1	1.226	1.174	1.028	.813	.315				
S/DEPTH=.1	24.0%	21.8%	14.4%	-.4%	-96.7%				
S/DEPTH=.9	1.167	1.121	.991	.797	.336	-.131	-.387	-.518	-.558
S/DEPTH=.8	28.2%	26.1%	15.3%	-.1%	-80.5%	299.4%	59.9%	-.531	-.565
S/DEPTH=.8	1.117	1.075	.958	.781	.353	-.102	-.366	-.40.8%	-.47.1%
S/DEPTH=.7	20.5%	18.6%	12.3%	.1%	-68.7%	354.8%	60.3%	-.524	-.561
S/DEPTH=.7	1.073	1.035	.928	.767	.366	-.077	-.348	-.38.5%	-.43.4%
S/DEPTH=.6	19.0%	17.2%	11.4%	.2%	-59.9%	434.3%	60.7%	-.518	-.558
S/DEPTH=.6	1.036	1.001	.903	.754	.376	-.057	-.332	-.36.4%	-.40.1%
S/DEPTH=.5	17.6%	15.9%	10.6%	.2%	-53.2%	*****	61.1%	-.513	-.555
S/DEPTH=.5	1.005	.973	.882	.742	.384	-.040	-.319	-.34.7%	-.37.4%
S/DEPTH=.4	16.4%	14.8%	9.8%	.2%	-48.2%	*****	61.4%	-.508	-.553
S/DEPTH=.4	.980	.950	.865	.733	.390	-.026	-.308	-.33.3%	-.35.2%
S/DEPTH=.3	15.4%	13.9%	9.2%	.2%	-44.4%	*****	61.6%	-.505	-.551
S/DEPTH=.3	.961	.933	.851	.725	.394	-.016	-.300	-.32.2%	-.35.5%
S/DEPTH=.2	14.6%	13.2%	8.7%	.1%	-41.6%	*****	61.8%	-.503	-.550
S/DEPTH=.2	.947	.920	.842	.720	.397	-.009	-.294	-.31.5%	-.34.3%
S/DEPTH=.1	14.0%	12.7%	8.3%	.1%	-39.8%	*****	61.9%	-.501	-.549
S/DEPTH=.1	.939	.913	.836	.717	.399	-.004	-.290	-.31.0%	-.34.0%
S/DEPTH=.0	13.7%	12.4%	8.1%	.0%	-38.7%	*****	62.0%	-.30.8%	-.33.9%
S/DEPTH=.0	.937	.910	.834	.715	.399	-.003	-.289	-.30.8%	-.33.9%
S/DEPTH=.0	13.6%	12.2%	8.0%	.0%	-38.3%	*****	62.1%	-.30.8%	-.33.9%

CASE 5=B

TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.012	.021	.028	.030	.013	.008	-.021	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.008	.008	.007	.006	.003	.002	.005	-.003	.001
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	-.000	.000

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TABLE XI=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH	
	DEFINED IN EQUATION (37)	
	.566	(=1%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY	
	DEFINED IN EQUATION (38)	
	.423	(=18.1%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY	
	DEFINED IN EQUATION (39)	
	.450	(=13.3%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY	
	DEFINED IN EQUATION (40)	
	.873	(=15.6%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX	
	DEFINED IN EQUATION (41)	
	.783	(=16.3%)
(6)	DIMENSIONLESS GROUP VELOCITY	
	DEFINED IN EQUATION (42)	
	.897	(=.6%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM	
	DEFINED IN EQUATION (43)	
	.895	(=12.0%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION	
	DEFINED IN EQUATION (44)	
	1.095	(=19.3%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION	
	DEFINED IN EQUATION (45)	
	.511	(=26.9%)

CASE 5#B

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.018708	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.004446	STREAM FUNCTION	.000051
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.030920	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.007980	STREAM FUNCTION	.000118
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.231827	STREAM FUNCTION	.319382
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.058206	STREAM FUNCTION	.167397

CASE 5=C

9TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2 * 2$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .029163 DPT/LO = .050000

H/DPT = .583254

L/LO = .597070 PSI/(G*H*T) = -.004620

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.496008*01 X(2)/(H*T*G) = -.100293*01

X(3)/(H*T*G) = -.196720*02 X(4)/(H*T*G) = -.344805*03

X(5)/(H*T*G) = -.529054*04 X(6)/(H*T*G) = -.605245*05

X(7)/(H*T*G) = -.751650*06 X(8)/(H*T*G) = -.102361*06

X(9)/(H*T*G) = -.621646*07

CASE 5=C

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	36.3%	.784	.687	.498	.318	.059	.106	.175	.216
			28.3%	5.7%	36.1%	442.0%	222.2%	50.3%	131.9%
SURFACE	11.068	9.531	6.692	4.139	.748	1.176	1.897	2.242	2.306
S/DEPTH=1.4	40.9%	32.5%	8.7%	34.9%	441.2%	233.3%	46.7%	89.6%	136.7%
S/DEPTH=1.3	100.0%	9.527	100.0%						
S/DEPTH=1.2	31.0%	8.821	26.2%						
S/DEPTH=1.1	27.1%	8.031	6.1%						
S/DEPTH=1.0	23.5%	7.439	4.0%	4.064					
S/DEPTH=.9	20.2%	6.911	1.9%	28.9%	.809				
S/DEPTH=.8	17.0%	6.493	1.1%	3.797	283.8%	232.5%	246.3%	1.830	2.300
S/DEPTH=.7	11.3%	6.143	4.942	3.718	230.9%	246.3%	47.0%	90.7%	137.3%
S/DEPTH=.6	5.853	5.563	4.767	3.647	1.184	1.873	1.769	2.213	2.292
S/DEPTH=.5	5.616	5.352	4.623	3.585	1.263	1.775	1.716	2.199	2.286
S/DEPTH=.4	5.429	5.185	4.506	3.533	1.325	1.693	1.670	2.186	2.280
S/DEPTH=.3	5.1%	5.057	4.417	3.492	1.372	1.628	1.633	2.176	2.276
S/DEPTH=.2	3.7%	4.867	4.334	3.463	1.407	1.577	1.603	2.168	2.272
S/DEPTH=.1	2.7%	4.614	4.316	3.445	1.431	1.542	1.582	2.162	2.270
S/DEPTH=.0	2.1%	4.304	4.097	3.440	1.465	1.521	1.570	2.159	2.268
	1.9%		3.8%	3.4%	1.450	1.514	1.565	2.158	2.267
			9.4%	2.6%	1.222%	*****	44.4%	77.9%	121.0%

CASE 5=C

TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	36.3%	.784	.687	.498	.318	.059	.106	.175	.216
		28.3%	5.7%	36.1%	442.0%	222.2%	50.3%	82.9%	131.9%
SURFACE	.000	3.251	4.660	4.722	3.348	1.592	.660	.145	.000
S/DEPTH=1.4	.000	77.6%	69.6%	57.0%	12.7%	106.6%	342.1%	*****	*****
S/DEPTH=1.3	.000	3.248							
S/DEPTH=1.2	.000	100.0%							
S/DEPTH=1.1	.000	2.762							
S/DEPTH=1.0	.000	73.6%							
S/DEPTH=.9	.000	2.352	4.063						
S/DEPTH=.8	.000	71.5%	67.5%						
S/DEPTH=.7	.000	2.004	3.489	4.187					
S/DEPTH=.6	.000	69.7%	65.7%	58.3%	25.2%	1.535			
S/DEPTH=.5	.000	1.705	2.989	3.626	24.6%	75.8%	.136		
S/DEPTH=.4	.000	68.0%	64.1%	56.7%	24.7%	1.381	.300	.123	.000
S/DEPTH=.3	.000	1.445	2.550	3.122	23.4%	69.1%	.542	.108	.000
S/DEPTH=.2	.000	66.4%	62.5%	55.3%	22.9%	66.6%	.474	.092	.000
S/DEPTH=.1	.000	1.219	2.162	2.668	22.5%	882	.402	.075	.000
S/DEPTH=.0	.000	65.0%	61.1%	53.9%	22.5%	64.6%	.326	.057	.000
S/DEPTH=.9	.000	1.018	1.814	2.255	22.1%	63.1%	.247	.038	.000
S/DEPTH=.8	.000	63.6%	59.8%	52.7%	21.8%	61.9%	.166	.019	.000
S/DEPTH=.7	.000	63.9	1.500	1.875	21.6%	61.1%	.083	.000	.000
S/DEPTH=.6	.000	62.4%	58.6%	51.6%	21.5%	60.0	.000	.000	.000
S/DEPTH=.5	.000	.676	1.212	1.524	21.4%	*****	*****	*****	*****
S/DEPTH=.4	.000	61.4%	57.6%	50.7%	21.3%	*****	*****	*****	*****
S/DEPTH=.3	.000	.526	.946	1.194	21.2%	*****	*****	*****	*****
S/DEPTH=.2	.000	60.5%	56.8%	49.9%	21.1%	*****	*****	*****	*****
S/DEPTH=.1	.000	.386	.696	.881	21.0%	*****	*****	*****	*****
S/DEPTH=.0	.000	59.8%	56.1%	49.3%	20.9%	*****	*****	*****	*****
S/DEPTH=.9	.000	.254	.458	.580	20.8%	*****	*****	*****	*****
S/DEPTH=.8	.000	59.3%	55.6%	48.8%	20.7%	*****	*****	*****	*****
S/DEPTH=.7	.000	.126	.227	.289	20.6%	*****	*****	*****	*****
S/DEPTH=.6	.000	*****	*****	48.6%	20.5%	*****	*****	*****	*****
S/DEPTH=.5	.000	.000	.000	.000	20.4%	*****	*****	*****	*****
S/DEPTH=.4	.000	*****	*****	*****	20.3%	*****	*****	*****	*****
S/DEPTH=.3	.000	*****	*****	*****	20.2%	*****	*****	*****	*****
S/DEPTH=.2	.000	*****	*****	*****	20.1%	*****	*****	*****	*****
S/DEPTH=.1	.000	*****	*****	*****	20.0%	*****	*****	*****	*****
S/DEPTH=.0	.000	*****	*****	*****	19.9%	*****	*****	*****	*****

CASE 5=C

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA ETA/HEIGHT	0 36.3%	10.0 687	20.0 498	30.0 318	50.0 059	75.0 106	100.0 175	130.0 209	180.0 216
ETA/HEIGHT	36.3%	28.3%	5.7%	36.1%	442.0%	222.2%	50.3%	82.9%	131.9%
SURFACE	0.00	50.364	68.093	64.962	41.385	17.209	6.659	1.472	.000
S/DEPTH=1.4	0.00	88.8%	83.6%	74.6%	37.1%	101.1%	463.2%	*****	*****
S/DEPTH=1.3	0.00	50.323							
S/DEPTH=1.2	0.00	100.0%							
S/DEPTH=1.1	0.00	42.512							
S/DEPTH=1.0	0.00	86.7%							
S/DEPTH=.9	0.00	36.118	59.780						
S/DEPTH=.8	0.00	85.0%	81.9%	59.051					
S/DEPTH=.7	0.00	30.879	52.007	73.9%					
S/DEPTH=.6	0.00	83.2%	80.1%						
S/DEPTH=.5	0.00	26.566	45.505	40.916					
S/DEPTH=.4	0.00	81.3%	78.2%	40.9%					
S/DEPTH=.3	0.00	23.070	40.084	39.522					
S/DEPTH=.2	0.00	79.3%	76.2%	70.1%					
S/DEPTH=.1	0.00	20.197	35.586	43.362	38.135	18.828			
S/DEPTH=.0	0.00	77.2%	74.1%	68.2%	40.7%	17.712			
S/DEPTH=.9	0.00	31.861	31.880	39.628	36.816	19.697			
S/DEPTH=.8	0.00	75.0%	72.0%	66.3%	40.4%	17.712			
S/DEPTH=.7	0.00	15.977	28.858	36.526	35.613	20.367			
S/DEPTH=.6	0.00	72.9%	70.0%	64.4%	39.9%	18.828			
S/DEPTH=.5	0.00	14.480	26.433	33.997	34.555	20.874			
S/DEPTH=.4	0.00	70.8%	68.0%	62.7%	39.5%	17.712			
S/DEPTH=.3	0.00	13.317	24.535	31.992	33.668	21.249			
S/DEPTH=.2	0.00	68.9%	66.2%	61.1%	39.0%	17.712			
S/DEPTH=.1	0.00	12.450	23.112	30.473	32.964	21.517			
S/DEPTH=.0	0.00	67.3%	64.7%	59.8%	38.8%	17.712			
S/DEPTH=.9	0.00	11.850	22.123	29.409	32.456	21.686			
S/DEPTH=.8	0.00	66.0%	63.6%	58.8%	36.3%	17.712			
S/DEPTH=.7	0.00	11.498	21.540	28.779	32.148	21.798			
S/DEPTH=.6	0.00	65.2%	62.8%	58.2%	36.1%	17.712			
S/DEPTH=.5	0.00	11.381	21.347	28.571	32.046	21.831			
S/DEPTH=.4	0.00	65.0%	62.6%	58.0%	36.0%	17.712			
S/DEPTH=.3	0.00	10.916	20.916	28.016	31.916	21.916			
S/DEPTH=.2	0.00	64.8%	62.4%	57.8%	35.8%	17.712			
S/DEPTH=.1	0.00	10.719	20.719	27.819	31.719	21.719			
S/DEPTH=.0	0.00	64.6%	62.2%	57.6%	35.6%	17.712			

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TABLE IV=DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)									
DEPTH	THETA	ETA/HEIGHT	0	10.0	20.0	30.0	50.0	75.0	100.0
			.784	.687	.598	.518	.459	.416	.380
			36.5%	28.5%	5.7%	=36.1%	=442.0%	222.2%	50.3%
SURFACE									
S/DEPTH=1.4									
S/DEPTH=1.3									
S/DEPTH=1.2									
S/DEPTH=1.1									
S/DEPTH=1.0									
S/DEPTH=.9									
S/DEPTH=.8									
S/DEPTH=.7									
S/DEPTH=.6									
S/DEPTH=.5									
S/DEPTH=.4									
S/DEPTH=.3									
S/DEPTH=.2									
S/DEPTH=.1									
S/DEPTH=.0									

CASE 5=C

TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA ETA/HEIGHT	0 .784 36.3%	10.0 .687 28.3%	20.0 .498 5.7%	30.0 .318 =36.1%	50.0 .059 =42.0%	75.0 .106 222.2%	100.0 50.3%	130.0 =209 =82.9%	180.0 =416 =131.9%
SURFACE	72.031	57.496	33.653	16.231	1.646	-.535	-.535	-4.198	-4.547
S/DEPTH=1.4	45.0%	33.5%	-1.9%	-75.3%	*****	*****	*****	-193.1%	-315.7%
S/DEPTH=1.3	65.383	57.052	100.0%						
S/DEPTH=1.2	100.0%	100.0%							
S/DEPTH=1.1	55.471	49.141	22.2%						
S/DEPTH=1.0	28.6%	22.2%	29.818						
S/DEPTH=.9	47.237	42.136	6.0%						
S/DEPTH=.8	24.2%	17.6%	26.032						
S/DEPTH=.7	40.303	36.162	8.3%	14.791					
S/DEPTH=.6	20.8%	14.4%	13.176	61.8%					
S/DEPTH=.5	34.386	31.007	10.3%	13.176	1.625				
S/DEPTH=.4	17.7%	11.5%	19.598	61.1%	1.546				
S/DEPTH=.3	29.270	26.503	12.2%	11.633	*****				
S/DEPTH=.2	14.9%	8.9%	16.825	60.6%	1.441				
S/DEPTH=.1	24.785	22.321	13.0%	10.159	*****				
S/DEPTH=.0	12.5%	6.6%	15.928	60.2%	1.312				
S/DEPTH=.9	20.799	18.954	15.3%	8.717	*****				
S/DEPTH=.8	10.3%	4.6%	11.928	59.9%	1.162				
S/DEPTH=.7	8.5%	2.9%	16.6%	59.7%	1.094				
S/DEPTH=.6	13.922	12.742	17.6%	6.085	*****				
S/DEPTH=.5	7.0%	1.4%	7.644	59.6%	1.122				
S/DEPTH=.4	10.877	9.970	18.2%	4.819	*****				
S/DEPTH=.3	5.7%	3.3%	19.1%	3.586	*****				
S/DEPTH=.2	8.010	7.351	19.1%	2.377	*****				
S/DEPTH=.1	5.272	4.642	19.6%	1.184	*****				
S/DEPTH=.0	4.1%	1.3%	1.856	*****	*****				
S/DEPTH=.9	2.616	2.403	*****	*****	*****				
S/DEPTH=.8	*****	*****	*****	*****	*****				
S/DEPTH=.7	*****	*****	*****	*****	*****				
S/DEPTH=.6	*****	*****	*****	*****	*****				
S/DEPTH=.5	*****	*****	*****	*****	*****				
S/DEPTH=.4	*****	*****	*****	*****	*****				
S/DEPTH=.3	*****	*****	*****	*****	*****				
S/DEPTH=.2	*****	*****	*****	*****	*****				
S/DEPTH=.1	*****	*****	*****	*****	*****				
S/DEPTH=.0	*****	*****	*****	*****	*****				

CASE 5=C

TABLE V1=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)									
THETA =	0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0
ETA/HEIGHT=	36.3%	26.3%	16.8%	7.4%	3.1%	1.0%	0.3%	0.1%	0.0%
SURFACE	.000	30.717	44.928	47.121	36.648	19.258	8.432	1.913	.000
S/DEPTH=1.4	.000	81.0%	74.4%	64.2%	29.0%	-69.6%	-284.8%	*****	*****
S/DEPTH=1.3	.000	100.0%	26.064	77.6%	22.143	39.152	72.7%	130.0	180.0
S/DEPTH=1.2	.000	77.6%	22.143	39.152	72.7%	130.0	180.0	-209	-216
S/DEPTH=1.1	.000	75.8%	72.7%	41.823	65.5%	16.761	-248.4%	-82.9%	-131.9%
S/DEPTH=1.0	.000	74.3%	71.3%	62.2%	65.5%	-40.4%	-248.4%	*****	*****
S/DEPTH=.9	.000	72.9%	69.9%	64.3%	59.5%	18.590	-236.8%	1.617	.000
S/DEPTH=.8	.000	71.6%	66.7%	63.2%	59.4%	43.9%	-236.8%	*****	*****
S/DEPTH=.7	.000	70.3%	67.5%	62.2%	58.2%	40.4%	-236.8%	1.424	.000
S/DEPTH=.6	.000	69.1%	66.4%	61.3%	56.9%	37.6%	-227.3%	*****	*****
S/DEPTH=.5	.000	68.1%	65.4%	60.4%	56.7%	35.2%	-227.3%	1.213	.000
S/DEPTH=.4	.000	67.2%	64.5%	59.7%	56.5%	33.4%	-219.7%	*****	*****
S/DEPTH=.3	.000	66.4%	63.9%	59.1%	56.3%	31.9%	-213.6%	.988	.000
S/DEPTH=.2	.000	65.8%	63.3%	58.6%	56.2%	30.8%	-209.1%	*****	*****
S/DEPTH=.1	.000	62.9%	62.9%	58.3%	56.1%	30.1%	-2131	.506	.000
S/DEPTH=.0	.000	2.141	2.141	2.884	3.208	2.182	-1.070	.254	.000
	.000	*****	*****	56.1%	36.0%	*****	*****	*****	*****
	.000	*****	*****	.000	.000	.000	.000	.000	.000
	.000	*****	*****	*****	*****	*****	*****	*****	*****

CASE 5=C

TABLE VII=DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA ETA/HEIGHT=	0 .784 36.3%	10.0 .498 28.3%	20.0 5.7%	30.0 .318 36.1%	40.0 .059 442.0%	50.0 75.0 222.2%	60.0 100.0 50.3%	70.0 130.0 82.9%	80.0 180.0 216 131.9%
SURFACE	66.822	49.732	25.094	10.264	.713	.325	.1215	.1867	.1999
S/DEPTH=1.4	58.2%	46.0%	5.0%	88.8%	*****	*****	*****	*****	*****
S/DEPTH=1.3	100.0%	49.671							
S/DEPTH=1.2	43.924	100.0%							
S/DEPTH=1.1	36.4%	38.439							
S/DEPTH=1.0	31.0%	30.1%							
S/DEPTH=.9	33.619	29.673	20.315						
S/DEPTH=.8	24.1%	24.1%	15.959	8.619					
S/DEPTH=.7	25.635	22.796	13.8%	63.2%					
S/DEPTH=.6	28.8%	20.2%	12.402	6.923	.692				
S/DEPTH=.5	19.415	17.376	6.5%	62.0%	.617	.279			
S/DEPTH=.4	23.0%	16.5%	9.502	5.456	*****	*****	.925	.1540	.1669
S/DEPTH=.3	14.549	13.093	7.13%	4.202	.528	.184	*****	*****	*****
S/DEPTH=.2	19.4%	9.704	11.2%	60.6%	.431	.120	*****	*****	*****
S/DEPTH=.1	16.2%	10.1%	5.234	3.143	*****	*****	*****	*****	*****
S/DEPTH=.0	13.3%	7.3%	13.2%	*****	*****	*****	*****	*****	*****
S/DEPTH=.9	5.400	4.920	3.702	2.262	.334	.075	*****	*****	*****
S/DEPTH=.8	10.7%	4.9%	15.0%	*****	*****	*****	*****	*****	*****
S/DEPTH=.7	3.592	3.851	2.496	1.542	.241	.046	*****	*****	*****
S/DEPTH=.6	8.6%	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.5	2.220	2.032	1.552	.973	.160	.026	*****	*****	*****
S/DEPTH=.4	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.3	1.215	1.115	.856	.541	.092	.013	*****	*****	*****
S/DEPTH=.2	.530	.486	.375	.238	.042	.006	*****	*****	*****
S/DEPTH=.1	.131	.120	.093	.059	.010	.001	*****	*****	*****
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	*****	*****	*****

TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

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CASE 5=C

TABLE IX=DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD....DEFINED IN EQUATION (29)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	36.3%	.784	.687	.498	.318	.059	.106	.175	.216
			28.3%	5.7%	.36.1%	.442.0%	222.2%	50.3%	.82.9%
SURFACE	1.566	1.372	.994	.635	.119	.211	.348	.419	.432
S/DEPTH=1.4	38.1%	30.4%	8.3%	.32.7%	.431.5%	225.6%	55.8%	.79.8%	.131.5%
8/DEPTH=1.3	1.509	1.371							
S/DEPTH=1.2	100.0%	100.0%							
S/DEPTH=1.1	1.416	26.6%	.972						
S/DEPTH=1.0	1.331	1.232	8.0%						
S/DEPTH=.9	29.0%	24.3%	7.6%	.645					
S/DEPTH=.8	1.253	1.169	.945	.25.8%	.134				
S/DEPTH=.7	26.5%	22.3%	.917	.652	.356.4%				
S/DEPTH=.6	1.184	1.112	7.1%	.21.8%	.172				
S/DEPTH=.5	24.1%	20.2%	.890	.654	.249.2%	.235.0%			
S/DEPTH=.4	1.123	1.060	6.3%	.19.0%	.203	.170			
S/DEPTH=.3	21.7%	18.2%	.865	.653	.191.5%	.258.5%	.59.8%	.416	.431
S/DEPTH=.2	19.5%	16.3%	5.5%	.16.9%	.145	.286.3%	.61.6%	.81.0%	.132.2%
S/DEPTH=.1	1.023	.975	.842	.650	.228	.124	.310	.412	.429
S/DEPTH=.0	17.5%	14.5%	4.6%	.15.5%	.248	.318.5%	.63.2%	.78.0%	.132.5%
	.984	.941	.821	.646				.409	.428
	15.6%	12.8%	3.8%	.14.4%	.132.3%	.107	.300	.74.2%	.127.3%
	.952	11.4%	.804	.642	.264	.355.0%	.64.5%	.407	.427
	14.0%	9.2%	3.0%	.13.7%	.116.1%	.092	.292	.71.0%	.122.9%
	.926	.890	.789	.638	.277	.394.3%	.65.7%	.405	.426
	12.6%	10.2%	2.4%	.13.1%	.104.7%	.082	.286	.68.4%	.119.3%
	.906	.873	.778	.635	.286	.433.8%	.66.6%	.403	.425
	11.5%	9.2%	1.8%	.12.8%	.096.9%	.074	.281	.66.4%	.116.6%
	.892	.860	.770	.632	.292	.355.0%	.64.5%	.407	.427
	10.7%	8.5%	1.4%	.12.5%	.091.8%	.069	.279	.65.0%	.114.6%
	.883	.853	.765	.630	.296	.355.0%	.64.5%	.405	.426
	10.2%	8.1%	1.2%	.12.4%	.088.9%	.068	.278	.64.1%	.113.4%
	.881	.850	.763	.630	.297	.355.0%	.64.5%	.405	.426
	10.1%	7.9%	1.1%	.12.4%	.087.9%	.068	.278	.63.8%	.113.0%

CASE 5=c

TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA#	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.032	.058	.074	.074	.031	.018	.043	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.015	.015	.014	.012	.006	.003	.010	.007	.000
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.001	.001	.001	.001	.000	.001	.001	.000	.000

CASE 5-C

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.597 (11.0%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.347 (44.2%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.386 (34.1%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.733 (58.9%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.663 (39.3%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.904 (5.3%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.769 (30.6%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.903 (45.4%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.240 (62.3%)

CASE 5=C

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

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* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR
      DEFINED IN EQUATION (46)
      LINEAR      ,045059      STREAM FUNCTION      ,000000

(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR
      DEFINED IN EQUATION (47)
      LINEAR      ,008734      STREAM FUNCTION      ,000566

(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR
      DEFINED IN EQUATION (46)
      LINEAR      ,079586      STREAM FUNCTION      ,000000

(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR
      DEFINED IN EQUATION (47)
      LINEAR      ,015375      STREAM FUNCTION      ,001457

(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER
      DEFINED IN EQUATION (48)
      LINEAR      ,359235      STREAM FUNCTION      ,540586

(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER
      DEFINED IN EQUATION (49)
      LINEAR      ,081889      STREAM FUNCTION      ,290640

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ITERATIONS ON ETA FAILED TO CONVERGE IN 40 ITER

CASE 5=0

10TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS
 LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2 * 2$
 H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .038997 DPT/LO = .050000
 H/DPT = .779945
 L/LO = .627344 PSI/(G*H*T) = -.004386

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T^6) = -.396972+01 X(2)/(H*T^6) = -.915802+02
 X(3)/(H*T^6) = -.223106+02 X(4)/(H*T^6) = -.497691+03
 X(5)/(H*T^6) = -.114087+03 X(6)/(H*T^6) = -.237810+04
 X(7)/(H*T^6) = -.602452+05 X(8)/(H*T^6) = -.129692+05
 X(9)/(H*T^6) = -.547740+06 X(10)/(H*T^6) = -.426991+06

CASE 5=D

TABLE 1: DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.839	.582	.363	.207	.012	.096	.137	.156	.161
	40.4%	15.4%	29.4%	109.2%	*****	234.6%	36.6%	145.3%	210.4%
SURFACE	.000	4.251	4.542	3.956	2.403	.990	.359	.081	.000
S/DEPTH#1.6	.000	81.3%	66.1%	44.5%	29.2%	241.4%	695.6%	*****	*****
S/DEPTH#1.5	.000	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH#1.4	.000	3.802	3.970	3.639	2.377	.968	.336	.077	.000
S/DEPTH#1.3	.000	79.1%	66.7%	52.0%	1.132	178.8%	621.3%	*****	*****
S/DEPTH#1.2	.000	76.3%	64.6%	50.4%	1.612	170.6%	621.3%	*****	*****
S/DEPTH#1.1	.000	71.9%	60.6%	48.8%	1.972	163.9%	589.4%	*****	*****
S/DEPTH#1.0	.000	1.772	2.867	3.161	1.369	167.9	564.3%	*****	*****
S/DEPTH# .9	.000	69.2%	62.6%	50.4%	1.640	158.3%	564.3%	*****	*****
S/DEPTH# .8	.000	1.474	2.426	2.728	1.132	153.9%	572	*****	*****
S/DEPTH# .7	.000	61.1%	60.6%	48.8%	1.177	153.9%	572	*****	*****
S/DEPTH# .6	.000	1.224	2.042	2.333	.899	150.4%	564.3%	*****	*****
S/DEPTH# .5	.000	65.1%	58.8%	47.3%	.671	147.7%	564.3%	*****	*****
S/DEPTH# .4	.000	1.009	1.703	1.972	.671	147.7%	564.3%	*****	*****
S/DEPTH# .3	.000	63.3%	57.1%	45.9%	.445	145.9%	564.3%	*****	*****
S/DEPTH# .2	.000	822	1.401	1.640	.222	117	564.3%	*****	*****
S/DEPTH# .1	.000	61.7%	55.7%	44.7%	.252	117	564.3%	*****	*****
S/DEPTH# .0	.000	657	1.127	1.332	.000	.000	564.3%	*****	*****
	.000	60.3%	54.4%	43.6%	.000	.000	564.3%	*****	*****
	.000	.508	.876	1.043	.000	.000	564.3%	*****	*****
	.000	59.1%	53.3%	42.7%	.000	.000	564.3%	*****	*****
	.000	.371	.643	.770	.000	.000	564.3%	*****	*****
	.000	58.2%	52.5%	41.9%	.000	.000	564.3%	*****	*****
	.000	.243	.422	.507	.000	.000	564.3%	*****	*****
	.000	57.5%	51.9%	41.4%	.000	.000	564.3%	*****	*****
	.000	.120	.209	.252	.000	.000	564.3%	*****	*****
	.000	*****	*****	41.1%	.000	.000	564.3%	*****	*****
	.000	.000	.000	.000	.000	.000	564.3%	*****	*****
	.000	*****	*****	*****	.000	.000	564.3%	*****	*****

CASE 5=D

TABLE IV=DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)
 THETA = 0 10.0 20.0 30.0 50.0 75.0 100.0 130.0 180.0
 ETA/HEIGHT = .039 .582 .953 .207 .012 .096 .137 .156 .161
 40.4% 15.0% 29.4% 109.2% ***** 234.6% 36.6% 145.3% 210.4%

SURFACE	-22.031	9.042	21.386	27.257	13.651	5.805	.641	.824
8/DEPTH=1.6	37.6%	239.3%	146.6%	115.9%	69.15%	88.12%	*****	*****
8/DEPTH=1.5	59.0%	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=1.4	48.220	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=1.3	100.0%	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=1.2	58.530	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=1.1	100.0%	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=1.0	60.141	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.9	75.9%	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.8	32.187	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.7	58.6%	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.6	53.368	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.5	62.2%	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.4	32.234	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.3	74.1%	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.2	41.129	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.1	72.9%	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.0	35.769	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.9	71.6%	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.8	30.735	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.7	70.3%	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.6	26.049	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.5	69.1%	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.4	21.692	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.3	68.0%	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.2	17.628	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.1	67.0%	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.0	13.809	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.9	66.8%	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.8	10.187	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.7	65.9%	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.6	66.710	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.5	65.0%	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.4	35.531	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.3	64.7%	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.2	*****	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.1	*****	*****	*****	*****	*****	*****	*****	*****
8/DEPTH=0.0	*****	*****	*****	*****	*****	*****	*****	*****

CASE 5=D

TABLE V=DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.839	.562	.363	.207	.012	.096	.137	.156	.161
	40.4%	15.4%	29.4%	109.2%	*****	234.6%	36.6%	145.3%	210.4%
SURFACE	85.518	45.059	20.597	8.534	.538	-.481	1.529	-2.257	-2.470
S/DEPTH#1.6	48.6%	5.9%	83.9%	265.6%	*****	*****	*****	*****	*****
S/DEPTH#1.5	61.140								
S/DEPTH#1.4	100.0%	41.098							
S/DEPTH#1.3	12.3%	34.811							
S/DEPTH#1.2	4.0%	11.3%	18.594						
S/DEPTH#1.1	29.264	25.225	16.363	6.071					
S/DEPTH#1.0	24.684	21.500	14.319	7.305	.538	-.456	1.342	-2.052	-2.256
S/DEPTH# .9	20.820	18.266	12.844	6.534	.529	-.367	1.151	-1.791	-1.969
S/DEPTH# .8	19.6%	15.474	10.718	5.767	.509	-.293	.989	-1.531	-1.684
S/DEPTH# .7	24.0%	16.0%	9.120	5.009	.478	-.180	.796	-1.273	-1.401
S/DEPTH# .6	12.022	10.733	7.830	4.253	.435	-.232	.629	-1.017	-1.119
S/DEPTH# .5	31.0%	42.3%	32.2%	3.529	.380	-.136	.467	-.761	-.838
S/DEPTH# .4	13.6%	44.7%	33.6%	2.897	.316	-.098	.309	-.507	-.558
S/DEPTH# .3	35.551	46.8%	36.7%	2.095	.244	-.063	.154	-.253	-.279
S/DEPTH# .2	37.4%	48.1%	38.6%	1.392	.166	-.031	.000	-.000	-.000
S/DEPTH# .1	3.047	3.286	2.397	.685	.084	*****	*****	*****	*****
S/DEPTH# .0	1.808	1.630	1.192	.000	.000	*****	*****	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 5=D

TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA ETA/HEIGHT	20.0 363 20.4K	30.0 207 109.2K	50.0 012 ***0K	75.0 100.0 36.6K	100.0 180.0 210.4K
	.839	.363	.207	.096	.156
	40.4K	20.4K	109.2K	234.6K	4145.3K
SURFACE	.000	45.107	41.273	27.928	12.707
S/DEPTH#1.6	***0K	75.0K	59.7K	7.3K	-157.6K
S/DEPTH#1.5	***0K				-507.6K
S/DEPTH#1.4	***0K				1.115
S/DEPTH#1.3	***0K				*****
S/DEPTH#1.2	***0K				*****
S/DEPTH#1.1	***0K				*****
S/DEPTH#1.0	***0K				*****
S/DEPTH# .9	***0K				*****
S/DEPTH# .8	***0K				*****
S/DEPTH# .7	***0K				*****
S/DEPTH# .6	***0K				*****
S/DEPTH# .5	***0K				*****
S/DEPTH# .4	***0K				*****
S/DEPTH# .3	***0K				*****
S/DEPTH# .2	***0K				*****
S/DEPTH# .1	***0K				*****
S/DEPTH# .0	***0K				*****

TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

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TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

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TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

271

CASE 5=0

TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.074	.132	.164	.151	.058	.032	.071	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.026	.025	.024	.021	.012	.004	.016	.013	.002
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.036	.012	.007	.007	.001	.001	.001	.002	.005

CASE 5-D

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.627 (15.3%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.241 (=107.8%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.285 (=65.8%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.527 (=95.6%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.488 (=92.8%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.927 (1.4%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.568 (=77.5%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.654 (=101.9%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.166 (=126.9%)

CASE 5=D

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR			
DEFINED IN EQUATION (46)	.090710	STREAM FUNCTION	.000000
LINEAR			
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR			
DEFINED IN EQUATION (47)	.014971	STREAM FUNCTION	.005338
LINEAR			
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR			
DEFINED IN EQUATION (46)	.169592	STREAM FUNCTION	.000000
LINEAR			
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR			
DEFINED IN EQUATION (47)	.025963	STREAM FUNCTION	.036093
LINEAR			
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER			
DEFINED IN EQUATION (48)	.499171	STREAM FUNCTION	.874734
LINEAR			
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER			
DEFINED IN EQUATION (49)	.100259	STREAM FUNCTION	.241770
LINEAR			

CASE 6aA

3TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO # DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2$
 H # WAVE HEIGHT G # GRAVITATIONAL CONSTANT
 T # WAVE PERIOD X(N) # NTH STREAM FUNCTION COEFFICIENT
 DPT # WATER DEPTH L # WAVE LENGTH
 PSI # VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO # .018312 DPT/LO # .100002
 H/DPT # .183115
 L/LO # .718164 PSI/(G*H*T) # -.003155

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) # -.555443E-01 X(2)/(H*T*G) # -.168746E-02
 X(3)/(H*T*G) # -.300411E-04

TABLE 1. DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD... DEFINED IN EQUATION (21)

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TABLE 1: DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD... DEFINED IN EQUATION (22)									
DEPTH	W	U	V	W	U	V	W	U	V
0	0	0	0	0	0	0	0	0	0
10.0	.558	.519	.458	.293	.061	.144	10.0	.350	.489
20.0	.571	.519	.458	.293	.061	.144	20.0	.350	.489
30.0	.584	.519	.458	.293	.061	.144	30.0	.350	.489
40.0	.597	.519	.458	.293	.061	.144	40.0	.350	.489
50.0	.610	.519	.458	.293	.061	.144	50.0	.350	.489
60.0	.623	.519	.458	.293	.061	.144	60.0	.350	.489
70.0	.636	.519	.458	.293	.061	.144	70.0	.350	.489
80.0	.649	.519	.458	.293	.061	.144	80.0	.350	.489
90.0	.662	.519	.458	.293	.061	.144	90.0	.350	.489
100.0	.675	.519	.458	.293	.061	.144	100.0	.350	.489
110.0	.688	.519	.458	.293	.061	.144	110.0	.350	.489
120.0	.701	.519	.458	.293	.061	.144	120.0	.350	.489
130.0	.714	.519	.458	.293	.061	.144	130.0	.350	.489
140.0	.727	.519	.458	.293	.061	.144	140.0	.350	.489
150.0	.740	.519	.458	.293	.061	.144	150.0	.350	.489
160.0	.753	.519	.458	.293	.061	.144	160.0	.350	.489
170.0	.766	.519	.458	.293	.061	.144	170.0	.350	.489
180.0	.779	.519	.458	.293	.061	.144	180.0	.350	.489
190.0	.792	.519	.458	.293	.061	.144	190.0	.350	.489
200.0	.805	.519	.458	.293	.061	.144	200.0	.350	.489
210.0	.818	.519	.458	.293	.061	.144	210.0	.350	.489
220.0	.831	.519	.458	.293	.061	.144	220.0	.350	.489
230.0	.844	.519	.458	.293	.061	.144	230.0	.350	.489
240.0	.857	.519	.458	.293	.061	.144	240.0	.350	.489
250.0	.870	.519	.458	.293	.061	.144	250.0	.350	.489
260.0	.883	.519	.458	.293	.061	.144	260.0	.350	.489
270.0	.896	.519	.458	.293	.061	.144	270.0	.350	.489
280.0	.909	.519	.458	.293	.061	.144	280.0	.350	.489
290.0	.922	.519	.458	.293	.061	.144	290.0	.350	.489
300.0	.935	.519	.458	.293	.061	.144	300.0	.350	.489
310.0	.948	.519	.458	.293	.061	.144	310.0	.350	.489
320.0	.961	.519	.458	.293	.061	.144	320.0	.350	.489
330.0	.974	.519	.458	.293	.061	.144	330.0	.350	.489
340.0	.987	.519	.458	.293	.061	.144	340.0	.350	.489
350.0	1.000	.519	.458	.293	.061	.144	350.0	.350	.489
360.0	1.013	.519	.458	.293	.061	.144	360.0	.350	.489
370.0	1.026	.519	.458	.293	.061	.144	370.0	.350	.489
380.0	1.039	.519	.458	.293	.061	.144	380.0	.350	.489
390.0	1.052	.519	.458	.293	.061	.144	390.0	.350	.489
400.0	1.065	.519	.458	.293	.061	.144	400.0	.350	.489
410.0	1.078	.519	.458	.293	.061	.144	410.0	.350	.489
420.0	1.091	.519	.458	.293	.061	.144	420.0	.350	.489
430.0	1.104	.519	.458	.293	.061	.144	430.0	.350	.489
440.0	1.117	.519	.458	.293	.061	.144	440.0	.350	.489
450.0	1.130	.519	.458	.293	.061	.144	450.0	.350	.489
460.0	1.143	.519	.458	.293	.061	.144	460.0	.350	.489
470.0	1.156	.519	.458	.293	.061	.144	470.0	.350	.489
480.0	1.169	.519	.458	.293	.061	.144	480.0	.350	.489
490.0	1.182	.519	.458	.293	.061	.144	490.0	.350	.489
500.0	1.195	.519	.458	.293	.061	.144	500.0	.350	.489
510.0	1.208	.519	.458	.293	.061	.144	510.0	.350	.489
520.0	1.221	.519	.458	.293	.061	.144	520.0	.350	.489
530.0	1.234	.519	.458	.293	.061	.144	530.0	.350	.489
540.0	1.247	.519	.458	.293	.061	.144	540.0	.350	.489
550.0	1.260	.519	.458	.293	.061	.144	550.0	.350	.489
560.0	1.273	.519	.458	.293	.061	.144	560.0	.350	.489
570.0	1.286	.519	.458	.293	.061	.144	570.0	.350	.489
580.0	1.299	.519	.458	.293	.061	.144	580.0	.350	.489
590.0	1.312	.519	.458	.293	.061	.144	590.0	.350	.489
600.0	1.325	.519	.458	.293	.061	.144	600.0	.350	.489
610.0	1.338	.519	.458	.293	.061	.144	610.0	.350	.489
620.0	1.351	.519	.458	.293	.061	.144	620.0	.350	.489
630.0	1.364	.519	.458	.293	.061	.144	630.0	.350	.489
640.0	1.377	.519	.458	.293	.061	.144	640.0	.350	.489
650.0	1.390	.519	.458	.293	.061	.144	650.0	.350	.489
660.0	1.403	.519	.458	.293	.061	.144	660.0	.350	.489
670.0	1.416	.519	.458	.293	.061	.144	670.0	.350	.489
680.0	1.429	.519	.458	.293	.061	.144	680.0	.350	.489
690.0	1.442	.519	.458	.293	.061	.144	690.0	.350	.489
700.0	1.455	.519	.458	.293	.061	.144	700.0	.350	.489
710.0	1.468	.519	.458	.293	.061	.144	710.0	.350	.489
720.0	1.481	.519	.458	.293	.061	.144	720.0	.350	.489
730.0	1.494	.519	.458	.293	.061	.144	730.0	.350	.489
740.0	1.507	.519	.458	.293	.061	.144	740.0	.350	.489
750.0	1.520	.519	.458	.293	.061	.144	750.0	.350	.489
760.0	1.533	.519	.458	.293	.061	.144	760.0	.350	.489
770.0	1.546	.519	.458	.293	.061	.144	770.0	.350	.489
780.0	1.559	.519	.458	.293	.061	.144	780.0	.350	.489
790.0	1.572	.519	.458	.293	.061	.144	790.0	.350	.489
800.0	1.585	.519	.458	.293	.061	.144	800.0	.350	.489
810.0	1.598	.519	.458	.293	.061	.144	810.0	.350	.489
820.0	1.611	.519	.458	.293	.061	.144	820.0	.350	.489
830.0	1.624	.519	.458	.293	.061	.144	830.0	.350	.489
840.0	1.637	.519	.458	.293	.061	.144	840.0	.350	.489
850.0	1.650	.519	.458	.293	.061	.144	850.0	.350	.489
860.0	1.663	.519	.458	.293	.061	.144	860.0	.350	.489
870.0	1.676	.519	.458	.293	.061	.144	870.0	.350	.489
880.0	1.689	.519	.458	.293	.061	.144	880.0	.350	.489
890.0	1.702	.519	.458	.293	.061	.144	890.0	.350	.489
900.0	1.715	.519	.458	.293	.061	.144	900.0	.350	.489
910.0	1.728	.519	.458	.293	.061	.144	910.0	.350	.489
920.0	1.741	.519	.458	.293	.061	.144	920.0	.350	.489
930.0	1.754	.519	.458	.293	.061	.144	930.0	.350	.489
940.0	1.767	.519	.458	.293	.061	.144	940.0	.350	.489
950.0	1.780	.519	.458	.293	.061	.144	950.0	.350	.489
960.0	1.793	.519	.458	.293	.061	.144	960.0	.350	.489
970.0	1.806	.519	.458	.293	.061	.144	970.0	.350	.489
980.0	1.819	.519	.458	.293	.061	.144	980.0	.350	.489
990.0	1.832	.519	.458	.293	.061	.144	990.0	.350	.489
1000.0	1.845	.519	.458	.293	.061	.144	1000.0	.350	.489

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TABLE III—DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	160.0
ETA/HEIGHT	12.5%	11.7%	9.5%	5.5%	2.9%	-12.0%	39.9%	86.5%	161.5%
SURFACE	.000	7.753	14.875	20.610	26.052	29.760	23.512	11.490	.000
8/DEPTH#1.1	*****	37.5%	35.6%	33.0%	23.0%	6.6%	16.5%	55.6%	*****
8/DEPTH#1.0	*****	37.4%	35.4%	32.7%	22.9%	6.2%	16.4%	55.5%	*****
8/DEPTH# .9	*****	36.3%	34.3%	31.6%	22.5%	6.7%	16.3%	55.4%	*****
8/DEPTH# .8	*****	35.8%	33.8%	31.1%	22.5%	6.2%	16.3%	55.4%	*****
8/DEPTH# .7	*****	35.2%	33.2%	30.5%	22.5%	6.2%	16.3%	55.4%	*****
8/DEPTH# .6	*****	34.8%	32.8%	30.1%	22.5%	6.2%	16.3%	55.4%	*****
8/DEPTH# .5	*****	34.5%	32.5%	29.8%	22.5%	6.2%	16.3%	55.4%	*****
8/DEPTH# .4	*****	34.2%	32.2%	29.5%	22.5%	6.2%	16.3%	55.4%	*****
8/DEPTH# .3	*****	34.0%	32.0%	29.3%	22.5%	6.2%	16.3%	55.4%	*****
8/DEPTH# .2	*****	33.8%	31.8%	29.1%	22.5%	6.2%	16.3%	55.4%	*****
8/DEPTH# .1	*****	33.6%	31.6%	28.9%	22.5%	6.2%	16.3%	55.4%	*****
8/DEPTH# .0	*****	33.4%	31.4%	28.7%	22.5%	6.2%	16.3%	55.4%	*****

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[illegible]

CASE 6-A

TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA ETA/HEIGHT	0 .571 12.4%	10.0 .558 11.7%	20.0 .519 9.4%	30.0 458 5.5%	50.0 293 9.6%	75.0 1061 112.0%	100.0 144 30.9%	130.0 360 6.5%	180.0 429 16.5%
SURFACE	17.123	16.392	14.357	11.437	5.096	.401	.745	.6.140	.9.072
S/DEPTH#1.1	14.5%	13.9%	10.7%	5.7%	13.0%	*****	*****	.9.82%	.21.7%
S/DEPTH#1.0	16.996	16.336	12.314	10.014	4.711	.397	.645	.5.825	.8.790
S/DEPTH# .9	13.8%	12.8%	8.6%	4.6%	11.7%	*****	*****	.9.7%	.23.9%
S/DEPTH# .8	14.420	13.870	10.443	8.519	4.052	.358	.528	.4.966	.7.544
S/DEPTH# .7	12.202	11.743	7.9%	4.1%	3.458	.319	.431	.6.3%	.22.6%
S/DEPTH# .6	10.271	9.889	6.808	3.7%	10.5%	.279	.348	.4.189	.6.399
S/DEPTH# .5	9.569	9.3%	7.361	6.033	2.919	.279	.348	.9.0%	.21.5%
S/DEPTH# .4	9.2%	8.6%	6.7%	5.3%	10.1%	*****	*****	.3.478	.5.338
S/DEPTH# .3	7.052	6.795	6.066	4.980	2.826	.238	.276	.5.6%	.20.6%
S/DEPTH# .2	8.7%	8.1%	6.5%	3.0%	9.7%	.198	.276	.2.821	.4.346
S/DEPTH# .1	5.679	5.474	4.890	4.021	1.969	.198	.276	.8.4%	.19.9%
S/DEPTH# .0	8.2%	7.7%	5.9%	2.6%	9.4%	*****	*****	.2.208	.3.413
S/DEPTH# .3	4.419	4.260	3.809	3.135	1.542	.150	.154	.8.2%	.19.3%
S/DEPTH# .2	3.244	3.128	2.798	2.60%	9.1%	.118	.154	.1.628	.2.823
S/DEPTH# .1	2.130	2.054	1.838	2.35%	8.0%	.079	.100	.8.1%	.18.8%
S/DEPTH# .0	7.4%	6.9%	5.2%	2.4%	7.49	.079	.100	.1.072	.18.5%
S/DEPTH# .1	1.058	1.018	.911	.751	*****	.079	.050	.8.0%	.18.5%
S/DEPTH# .0	7.3%	6.8%	5.1%	2.3%	*****	*****	*****	.532	.827
S/DEPTH# .0	*****	.000	*****	.000	*****	.000	.000	*****	*****
S/DEPTH# .0	*****	.000	*****	.000	*****	.000	.000	*****	*****

TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD... DEFINED IN EQUATION (26)

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TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.571	.558	.519	.458	.293	.061	.144	.360	.429
12.0%	11.7%	9.4%	5.3%	9.6%	112.0%	39.9%	6.5%	16.5%	
SURFACE	11.06	10.580	9.158	7.158	3.011	.202	.433	.3.153	.4.527
8/DEPTH#1.1	17.5%	16.3%	13.1%	7.2%	15.1%	*****	*****	.9.4%	.22.2%
8/DEPTH#1.0	16.5%	16.0%	13.2%	5.674	2.616	.198	.339	.2.865	.4.270
8/DEPTH# .9	13.2%	12.5%	10.0%	5.5%	13.0%	*****	*****	.10.5%	.26.4%
8/DEPTH# .8	11.0%	10.3%	8.1%	4.252	1.989	.162	.240	.2.134	.5.210
8/DEPTH# .7	10.1%	9.5%	7.4%	3.132	1.484	.128	.167	.9.9%	.24.8%
8/DEPTH# .6	9.3%	8.7%	6.8%	2.253	1.079	.098	.115	.1.550	.2.350
8/DEPTH# .5	8.7%	8.1%	6.3%	1.568	.758	.072	.112	.9.4%	.23.0%
8/DEPTH# .4	8.0%	7.4%	5.8%	1.040	.507	.050	.073	.9.0%	.21.7%
8/DEPTH# .3	7.4%	6.8%	5.2%	3.0%	.314	.032	.044	.8.7%	.20.6%
8/DEPTH# .2	6.8%	6.2%	4.6%	2.8%	*****	*****	*****	.450	.19.8%
8/DEPTH# .1	6.2%	5.6%	4.0%	.350	.172	.018	.024	.327	.332
8/DEPTH# .0	5.6%	5.0%	3.4%	.152	.075	.008	.010	.108	.167
	5.0%	4.4%	2.8%	.038	.019	.002	.002	.027	.041
	4.4%	3.8%	2.2%	*****	*****	*****	*****	.000	.000
	3.8%	3.2%	1.6%	.000	.000	*****	*****	.000	.000
	3.2%	2.6%	1.0%	*****	*****	*****	*****	.000	.000
	2.6%	2.0%	.4%	*****	*****	*****	*****	.000	.000
	2.0%	1.4%	.0%	*****	*****	*****	*****	.000	.000
	1.4%	.8%	.0%	*****	*****	*****	*****	.000	.000
	.8%	.2%	.0%	*****	*****	*****	*****	.000	.000
	.2%	.0%	.0%	*****	*****	*****	*****	.000	.000
	.0%	.0%	.0%	*****	*****	*****	*****	.000	.000

CASE 6MA

TABLE VII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

ETA/HEIGHT	THETA	20.0	30.0	50.0	75.0	100.0	130.0	180.0
12.4%	571	558	519	.458	.293	.144	-.360	-.429
		9.4%	5.3%	9.6%	112.0%	39.9%	-6.5%	-16.5%
SURFACE	0.00	6.863	9.126	12.120	12.229	9.931	4.874	.000
S/DEPTH#1.1	.000	29.6%	26.7%	18.0%	3.0%	-14.2%	-38.5%	*****
S/DEPTH#1.0	.000	5.155	7.383	10.610	11.907	8.336	4.515	.000
S/DEPTH# .9	.000	26.5%	24.6%	18.3%	5.7%	10.7%	38.8%	*****
S/DEPTH# .8	.000	27.6%	23.1%	17.2%	5.4%	10.7%	35.7%	.000
S/DEPTH# .7	.000	25.9%	21.7%	16.1%	5.1%	9.8%	35.7%	*****
S/DEPTH# .6	.000	1.514	4.247	6.178	5.258	4.828	2.696	.000
S/DEPTH# .5	.000	24.4%	21.0%	15.2%	4.8%	5.1%	3.0%	*****
S/DEPTH# .4	.000	1.105	3.107	4.544	3.759	3.482	1.968	.000
S/DEPTH# .3	.000	23.0%	20.4%	14.3%	4.6%	8.3%	30.8%	*****
S/DEPTH# .2	.000	21.8%	19.3%	13.6%	4.4%	2.380	1.359	.000
S/DEPTH# .1	.000	.521	1.472	2.171	2.590	6.0%	29.0%	*****
0	.000	19.8%	16.4%	13.6%	1.600	1.503	27.6%	.000
	.000	.634	.916	1.356	4.2%	7.6%	485	.000
	.000	19.0%	17.6%	13.1%	.887	.837	*****	.000
	.000	.348	.504	.748	4.1%	7.3%	215	.000
	.000	.178	.221	12.6%	.390	.369	*****	.000
	.000	.078	.152	.328	*****	*****	*****	.000
	.000	.019	.038	.081	.097	.092	.054	.000
	.000	.000	.000	.000	*****	*****	*****	.000
	.000	.000	.000	.000	.000	.000	.000	*****

TABLE IX. DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD... DEFINED IN EQUATION (29)

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TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	160.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.004	.007	.009	.010	.005	.003	.008	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.005	.003	.004	.002	.003	.007	.006	.003	.009
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 6-A

TABLE X1-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.718 (.128)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.490 (.2.0X)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.498 (.21.7X)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.988 (.21.9X)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.803 (.21.6X)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.813 (.2X)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.990 (.21.1X)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	1.106 (.21.7X)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.303 (.21.7X)

CASE 6=A

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.006669	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.005266	STREAM FUNCTION	.000039
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.010369	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.008802	STREAM FUNCTION	.000121
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.121155	STREAM FUNCTION	.134962
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.056605	STREAM FUNCTION	.076372

CASE 6=8

5TH ORDER STREAM FUNCTION WAVE THEORY

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO=(G/g,20318)^{.5}T^{.2}$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .016611 DPT/LO = .100002

H/DPT = .166304

L/LO = .743750 PSI/(G*H*T) = -.005873

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.535441=01 X(2)/(H*T*G) = -.340594=02

X(3)/(H*T*G) = -.140295=03 X(4)/(H*T*G) = -.211628=05

X(5)/(H*T*G) = .257621=06

3.1. DEFINITION OF THE HORIZONTAL VELOCITY COMPONENT FIELD

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CASE 6MB

TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA ETA/HEIGHT	0 22.1%	.642 20.8%	.617 20.8%	.549 14.4%	.452 4.2%	50.0 23.2	75.0 9.09	100.0 51.1%	130.0 178	150.0 320	180.0 358
SURFACE	.000	1.227	2.255	2.970	3.464	2.955	2.054	.835	.000	.000	.000
S/DEPTH=1.2	.000	45.0%	41.6%	36.1%	20.0%	8.8%	44.5%	101.1%	.000	.000	.000
S/DEPTH=1.1	.000	42.8%	41.5%	37.5%	34.3%	2.603	3.7%	1.741	.765	.000	.000
S/DEPTH=1.0	.000	39.3%	37.5%	32.2%	32.4%	2.260	3.7%	1.741	.765	.000	.000
S/DEPTH=.9	.000	37.2%	35.4%	30.8%	21.7%	2.062	3.7%	1.741	.765	.000	.000
S/DEPTH=.8	.000	35.3%	33.6%	29.0%	20.3%	1.937	3.7%	1.741	.765	.000	.000
S/DEPTH=.7	.000	33.6%	31.9%	27.6%	19.1%	1.824	3.7%	1.741	.765	.000	.000
S/DEPTH=.6	.000	32.1%	30.4%	26.3%	18.0%	1.719	3.7%	1.741	.765	.000	.000
S/DEPTH=.5	.000	30.7%	29.1%	25.3%	17.0%	1.630	3.7%	1.741	.765	.000	.000
S/DEPTH=.4	.000	29.6%	28.0%	24.4%	16.2%	1.552	3.7%	1.741	.765	.000	.000
S/DEPTH=.3	.000	28.6%	27.1%	23.9%	15.5%	1.484	3.7%	1.741	.765	.000	.000
S/DEPTH=.2	.000	27.9%	26.3%	23.2%	15.0%	1.422	3.7%	1.741	.765	.000	.000
S/DEPTH=.1	.000	27.4%	25.8%	22.7%	14.6%	1.368	3.7%	1.741	.765	.000	.000
S/DEPTH=.0	.000	27.0%	25.4%	22.3%	14.4%	1.322	3.7%	1.741	.765	.000	.000

CASE 6=B

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.617	.549	.452	.352	.309	.278	.230	.158
	22.1%	14.4%	4.2%	-38.6%	*****	51.1%	-19.9%	-39.5%
SURFACE	.000	12.246	22.167	29.170	33.026	26.737	17.498	6.619
	*****	60.0%	56.9%	51.8%	35.1%	7.6%	-56.6%	-171.8%
S/DEPTH#1.2	.000	11.793	22.336					*****
	*****	58.4%	56.8%					*****
S/DEPTH#1.1	.000	10.233	19.447	26.758				*****
	*****	54.9%	53.0%	49.7%				*****
S/DEPTH#1.0	.000	8.952	17.032	23.374	30.199			*****
	*****	52.0%	50.1%	46.8%	34.6%			*****
S/DEPTH# .9	.000	7.849	15.019	20.910	27.327	25.293	17.486	*****
	*****	49.0%	47.2%	44.0%	32.3%	3.2%	50.5%	*****
S/DEPTH# .8	.000	6.953	13.348	18.690	24.032	23.938	17.387	*****
	*****	46.0%	44.2%	41.1%	30.1%	3.5%	43.2%	*****
S/DEPTH# .7	.000	6.215	11.970	16.553	22.846	22.775	17.226	*****
	*****	43.0%	41.3%	38.4%	28.0%	3.6%	37.5%	*****
S/DEPTH# .6	.000	5.614	10.846	15.350	21.149	21.690	17.035	*****
	*****	40.2%	38.6%	35.8%	26.1%	3.7%	32.9%	*****
S/DEPTH# .5	.000	5.132	9.944	14.139	19.766	20.808	16.839	*****
	*****	37.6%	36.0%	33.2%	24.3%	3.7%	29.3%	*****
S/DEPTH# .4	.000	4.756	9.237	13.188	18.669	20.087	16.656	*****
	*****	35.2%	33.8%	31.3%	22.8%	3.7%	26.5%	*****
S/DEPTH# .3	.000	4.473	8.707	12.473	17.839	19.528	16.501	*****
	*****	33.2%	31.6%	29.6%	21.5%	3.6%	24.5%	*****
S/DEPTH# .2	.000	4.277	8.338	11.975	17.256	19.130	16.383	*****
	*****	31.6%	30.5%	28.3%	20.6%	3.5%	23.0%	*****
S/DEPTH# .1	.000	4.161	8.121	11.682	16.912	18.892	15.311	*****
	*****	30.8%	29.6%	27.4%	20.0%	3.5%	22.2%	*****
S/DEPTH# .0	.000	4.123	8.049	11.595	16.797	18.612	16.286	*****
	*****	30.5%	29.3%	27.2%	19.8%	3.5%	21.9%	*****

TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

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CASE 6=B

TABLE VI=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THE TA ETA/HEIGHT=	0 0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.642	.617	.589	.452	.232	.009	.178	.320	.338
	22.1%	20.2%	14.4%	4.2%	38.6%	*****	51.1%	19.9%	39.5%
SURFACE	7.953	14.716	19.604	23.671	21.387	15.733	6.796	*****	.000
S/DEPTH=1.2	47.7%	44.5%	39.4%	24.2%	2.9%	37.4%	95.2%	*****	*****
S/DEPTH=1.1	45.6%	44.4%	37.7%	26.1%	3.5%	33.7%	95.8%	*****	.000
S/DEPTH=1.0	42.3%	40.6%	35.7%	23.8%	3.5%	31.8%	90.2%	*****	.000
S/DEPTH=.9	40.4%	38.7%	34.3%	22.9%	3.5%	27.0%	85.6%	*****	.000
S/DEPTH=.8	38.6%	37.0%	34.3%	22.1%	3.5%	25.6%	85.6%	*****	.000
S/DEPTH=.7	37.0%	35.5%	32.9%	21.4%	3.5%	24.3%	81.8%	*****	.000
S/DEPTH=.6	35.5%	34.0%	31.5%	20.8%	3.5%	23.6%	78.9%	*****	.000
S/DEPTH=.5	34.2%	32.8%	30.4%	20.3%	3.5%	22.9%	76.7%	*****	.000
S/DEPTH=.4	33.1%	31.7%	29.4%	20.0%	3.5%	22.4%	75.1%	*****	.000
S/DEPTH=.3	32.1%	30.8%	28.6%	20.0%	3.5%	22.4%	75.1%	*****	.000
S/DEPTH=.2	31.4%	30.1%	27.9%	20.0%	3.5%	22.4%	75.1%	*****	.000
S/DEPTH=.1	30.8%	29.6%	27.5%	20.0%	3.5%	22.4%	75.1%	*****	.000
S/DEPTH=.0	30.0%	29.0%	27.0%	20.0%	3.5%	22.4%	75.1%	*****	.000

CASE 6=B

TABLE VII=DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	22.1%	6.62	20.2%	14.4%	5.99	.452	.232	.009	.320
				4.2%		38.6%	51.1%	19.9%	39.5%
SURFACE	17.097	15.757	12.417	8.441	2.418	.035	.562	2.177	2.785
S/DEPTH#1.2	12.1%	29.1%	19.8%	3.2%	67.4%	*****	*****	29.82%	51.5%
S/DEPTH#1.1	15.455	14.635	12.383	7.065					
S/DEPTH#1.0	24.9%	23.7%	19.6%	7.065					
S/DEPTH#1.0	11.567	10.976	9.346	5.345	1.972				
S/DEPTH#1.0	19.1%	17.3%	11.6%	7.001	49.9%	.035	.497		
S/DEPTH#1.0	8.601	8.176	9.8%	3.995	1.526	*****	*****		
S/DEPTH#1.0	16.8%	15.1%	5.188	3.995	46.1%	*****	*****		
S/DEPTH#1.0	6.332	6.028	6.1%	2.937	1.055	.032	.347	1.716	2.306
S/DEPTH#1.0	14.8%	13.2%	3.785	2.937	43.0%	*****	*****	36.7%	73.4%
S/DEPTH#1.0	4.593	4.379	6.7%	2.1%	.851	.028	.238	1.257	1.711
S/DEPTH#1.0	12.9%	11.4%	5.5%	2.110	*****	*****	*****	34.9%	69.0%
S/DEPTH#1.0	3.261	3.113	1.867	1.466	60.4	.023	.159	1.889	1.222
S/DEPTH#1.0	11.4%	9.9%	4.4%	3.44%	*****	*****	*****	33.4%	65.3%
S/DEPTH#1.0	2.245	2.145	1.867	1.466	407	.018	.102	1.597	1.829
S/DEPTH#1.0	10.0%	8.6%	4.4%	3.44%	*****	*****	*****	*****	*****
S/DEPTH#1.0	1.475	1.411	1.231	.971	*****	*****	*****	*****	*****
S/DEPTH#1.0	8.8%	7.6%	3.5%	3.8%	.254	.012	.061	1.372	1.520
S/DEPTH#1.0	9.03	8.64	.755	.598	*****	*****	*****	*****	*****
S/DEPTH#1.0	7.9%	6.7%	*****	326	1.140	.007	.032	1.205	1.288
S/DEPTH#1.0	.490	.470	.411	*****	*****	*****	*****	*****	*****
S/DEPTH#1.0	*****	*****	*****	326	1.140	*****	*****	*****	*****
S/DEPTH#1.0	.213	.204	.179	.142	.061	.003	.014	1.090	1.17
S/DEPTH#1.0	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH#1.0	.052	.050	.044	.035	.015	.001	.003	1.022	.051
S/DEPTH#1.0	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH#1.0	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH#1.0	*****	*****	*****	*****	*****	*****	*****	*****	*****

TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

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TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

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TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.019	.034	.044	.046	.020	.012	.030	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.007	.006	.003	.000	.009	.015	.010	.010	.020
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 6-B

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.744 (.46%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.459 (.8.9%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.480 (.7.6%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.939 (.8.3%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.775 (.7.2%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.826 (.1.0%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.955 (.5.2%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	1.055 (.7.3%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.280 (.7.5%)

CASE 6=B

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.028388	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.011306	STREAM FUNCTION	.000102
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.048241	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.020339	STREAM FUNCTION	.000191
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.257855	STREAM FUNCTION	.309936
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.108556	STREAM FUNCTION	.182958

CASE 6=C

7TH ORDER STREAM FUNCTION WAVE THEORY

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/g \cdot 2\pi \cdot 18) \cdot T^{**2}$

DEFINITIONS

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .054927 DPT/LO = .100002
 H/DPT = .549254
 L/LO = .783203 PSI/(G*H*T) = -.007567

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) =	-.489629=01	X(2)/(H*T*G) =	-.490251=02
X(3)/(H*T*G) =	-.402895=03	X(4)/(H*T*G) =	-.254856=04
X(5)/(H*T*G) =	-.127397=05	X(6)/(H*T*G) =	-.109304=06
X(7)/(H*T*G) =	-.494603=07		

CASE 6=C

TABLE I=DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA = ETA/HEIGHT	0 .713 20.9%	10.0 .657 25.0%	20.0 .530 11.4%	30.0 .390 11.1%	50.0 .146 120.1%	75.0 0.061 313.2%	100.0 0.180 51.8%	130.0 0.266 44.10%	180.0 0.287 74.4%
SURFACE	7.676	7.006	5.557	4.024	1.537	0.403	0.1419	0.2085	0.2236
S/DEPTH=1.3	3.06%	25.3%	10.9%	11.7%	108.0%	307.9%	47.4%	43.9%	69.4%
S/DEPTH=1.2	6.13%	5.859	5.089	3.983					
S/DEPTH=1.1	17.6%	15.0%	6.7%	0.9%					
S/DEPTH=1.0	5.520	5.269	4.645	3.706					
S/DEPTH=0.9	14.5%	12.1%	4.5%	10.4%					
S/DEPTH=0.8	9.003	4.809	4.263	3.459	1.548				
S/DEPTH=0.7	11.5%	9.4%	2.4%	10.6%	83.8%				
S/DEPTH=0.6	8.8%	4.405	3.937	3.241	1.550				
S/DEPTH=0.5	4.207	4.065	3.660	3.031	72.8%	0.308	0.418	0.2049	0.2217
S/DEPTH=0.4	6.4%	3.782	3.426	1.17%	64.2%	0.186	0.293	0.464%	0.70.8%
S/DEPTH=0.3	4.2%	3.658	3.232	1.22%	57.0%	0.091	0.186	0.1987	0.2.175
S/DEPTH=0.2	2.3%	3.358	3.073	2.635	52.1%	0.014	0.095	0.4.2%	0.71.9%
S/DEPTH=0.1	3.457	3.208	2.946	2.542	47.8%	0.007	0.021	0.1.6%	0.67.1%
S/DEPTH=0.0	0.6%	3.176	2.850	2.471	44.5%	0.04	0.062	0.39.4%	0.63.10%
S/DEPTH=0.0	1.7%	3.095	2.782	2.421	40.1%	0.094	0.168	0.1.6%	0.59.7%
S/DEPTH=0.0	2.4%	2.967	2.742	2.392	36.7%	0.128	0.1818	0.37.6%	0.59.7%
S/DEPTH=0.0	3.045	2.902	2.729	2.382	32.1%	0.152	0.1796	0.35.2%	0.55.2%
S/DEPTH=0.0	3.089	2.952	2.754	2.382	29.4%	0.166	0.1783	0.34.6%	0.54.1%
S/DEPTH=0.0	3.11%	2.91%	2.73%	2.35%	26.9%	0.171	0.1779	0.34.4%	0.53.8%

CASE 6=C

TABLE II-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.713	.657	.530	.390	.146	.061	.180	.266	.287
20.9%	25.0%	25.0%	11.4%	-11.1%	-120.1%	313.2%	51.8%	-44.0%	-74.0%
SURFACE	.000	1.895	3.072	3.552	3.347	2.333	1.179	.465	.000
S/DEPTH#1.3	*****	6.6%	52.8%	41.6%	11.4%	-41.6%	-111.0%	-226.8%	*****
S/DEPTH#1.2	*****	56.1%	2.630	3.473					
S/DEPTH#1.1	*****	1.424	48.3%	42.6%					
S/DEPTH#1.0	*****	51.5%	2.222	2.958					
S/DEPTH# .9	*****	1.196	45.4%	40.1%					
S/DEPTH# .8	*****	48.5%	1.876	2.515					
S/DEPTH# .7	*****	1.005	42.8%	37.6%					
S/DEPTH# .6	*****	45.6%	1.580	2.131					
S/DEPTH# .5	*****	.843	40.3%	35.3%					
S/DEPTH# .4	*****	43.2%	1.324	1.796					
S/DEPTH# .3	*****	.704	36.0%	33.2%					
S/DEPTH# .2	*****	40.8%	1.100	1.499					
S/DEPTH# .1	*****	.583	36.0%	31.3%					
S/DEPTH# 0	*****	38.7%	.902	1.234					
S/DEPTH# .9	*****	.477	34.2%	29.6%					
S/DEPTH# .8	*****	36.8%	.724	.993					
S/DEPTH# .7	*****	.382	32.6%	28.2%					
S/DEPTH# .6	*****	35.2%	.562	.773					
S/DEPTH# .5	*****	.296	31.3%	27.0%					
S/DEPTH# .4	*****	33.9%	.412	.567					
S/DEPTH# .3	*****	.217	30.3%	26.0%					
S/DEPTH# .2	*****	32.8%	.142	.237					
S/DEPTH# .1	*****	.070	29.6%	25.4%					
S/DEPTH# 0	*****	.000	*****	*****					
S/DEPTH# .9	*****	.000	*****	*****					
S/DEPTH# .8	*****	.000	*****	*****					
S/DEPTH# .7	*****	.000	*****	*****					
S/DEPTH# .6	*****	.000	*****	*****					
S/DEPTH# .5	*****	.000	*****	*****					
S/DEPTH# .4	*****	.000	*****	*****					
S/DEPTH# .3	*****	.000	*****	*****					
S/DEPTH# .2	*****	.000	*****	*****					
S/DEPTH# .1	*****	.000	*****	*****					
S/DEPTH# 0	*****	.000	*****	*****					

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TABLE III=DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.713	.657	.530	.390	.146	.061	.180	.266
	29.9%	25.0%	11.4%	11.1%	120.1%	313.2%	51.8%	44.0%
SURFACE	0.00	22.204	34.371	37.791	32.758	20.743	11.164	3.403
*****	77.5%	71.5%	62.3%	62.3%	59.8%	145.5%	433.2%	*****
S/DEPTH=1.3	0.00	19.741						*****
*****	74.7%							*****
S/DEPTH=1.2	0.00	16.366	29.347	36.996				*****
*****	71.3%	68.2%		62.6%				*****
S/DEPTH=1.1	0.00	13.677	24.825	31.873				*****
*****	68.3%	65.3%	59.9%	59.9%				*****
S/DEPTH=1.0	0.00	11.526	21.147	27.598				*****
*****	65.1%	62.2%	57.0%	57.0%				*****
S/DEPTH= .9	0.00	9.804	18.160	24.050				*****
*****	61.9%	59.1%	54.1%	54.1%				*****
S/DEPTH= .8	0.00	8.423	15.737	21.121				*****
*****	58.6%	55.9%	51.1%	51.1%				*****
S/DEPTH= .7	0.00	7.318	13.780	18.722				*****
*****	55.3%	52.7%	48.2%	48.2%				*****
S/DEPTH= .6	0.00	6.440	12.213	16.776				*****
*****	52.1%	49.6%	45.3%	45.3%				*****
S/DEPTH= .5	0.00	5.751	10.974	15.223				*****
*****	49.0%	46.7%	42.8%	42.8%				*****
S/DEPTH= .4	0.00	5.220	10.017	14.013				*****
*****	46.2%	44.0%	40.2%	40.2%				*****
S/DEPTH= .3	0.00	4.828	9.306	13.109				*****
*****	43.7%	41.7%	38.2%	38.2%				*****
S/DEPTH= .2	0.00	4.558	8.815	12.682				*****
*****	41.9%	40.0%	36.8%	36.8%				*****
S/DEPTH= .1	0.00	4.400	8.528	12.114				*****
*****	40.7%	38.9%	35.7%	35.7%				*****
S/DEPTH= .0	0.00	4.348	8.433	11.992				*****
*****	40.3%	38.5%	35.3%	35.3%				*****

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TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (20)									
THETA =	0	10.0	20.0	30.0	50.0	70.0	100.0	130.0	180.0
ETA/HEIGHT=	29.0%	.713	.657	.530	.390	.146	.061	.266	.287
		29.0%	25.0%	11.4%	11.1%	120.1%	313.2%	51.8%	74.4%
SURFACE		14.416	28.996	17.325	5.577	10.244	15.879	12.687	6.311
S/DEPTH#1.3		53.7%	46.6%	18.1%	117.0%	161.2%	86.5%	25.9%	151.6%
S/DEPTH#1.2		22.631	28.376						
S/DEPTH#1.1		51.1%	45.4%						
S/DEPTH#1.0		29.895	26.624						
S/DEPTH# .9		49.3%	44.3%						
S/DEPTH# .8		27.049	24.366						
S/DEPTH# .7		47.8%	43.4%						
S/DEPTH# .6		24.033	21.891						
S/DEPTH# .5		46.1%	42.1%						
S/DEPTH# .4		21.077	19.383						
S/DEPTH# .3		44.3%	40.7%						
S/DEPTH# .2		18.243	16.873						
S/DEPTH# .1		42.5%	39.2%						
S/DEPTH# .0		15.556	14.465						
S/DEPTH# .9		40.9%	37.8%						
S/DEPTH# .8		33.020	32.157						
S/DEPTH# .7		39.3%	36.4%						
S/DEPTH# .6		10.623	9.952						
S/DEPTH# .5		38.0%	35.2%						
S/DEPTH# .4		8.347	7.841						
S/DEPTH# .3		36.9%	34.2%						
S/DEPTH# .2		6.112	5.808						
S/DEPTH# .1		36.0%	33.3%						
S/DEPTH# .0		4.072	3.837						
S/DEPTH# .9		35.3%	32.7%						
S/DEPTH# .8		2.023	1.908						
S/DEPTH# .7		34.9%	32.4%						
S/DEPTH# .6		.000	.000						
S/DEPTH# .5		.000	.000						
S/DEPTH# .4		.000	.000						
S/DEPTH# .3		.000	.000						
S/DEPTH# .2		.000	.000						
S/DEPTH# .1		.000	.000						
S/DEPTH# .0		.000	.000						
S/DEPTH# .9		177.1%	177.1%						
S/DEPTH# .8		13.867	12.669						
S/DEPTH# .7		92.1%	32.1%						
S/DEPTH# .6		11.263	10.903						
S/DEPTH# .5		93.9%	33.8%						
S/DEPTH# .4		9.075	9.251						
S/DEPTH# .3		95.6%	35.2%						
S/DEPTH# .2		7.224	7.709						
S/DEPTH# .1		97.3%	36.3%						
S/DEPTH# .0		5.644	6.1265						
S/DEPTH# .9		98.9%	37.1%						
S/DEPTH# .8		4.277	4.906						
S/DEPTH# .7		100.3%	37.8%						
S/DEPTH# .6		3.072	3.618						
S/DEPTH# .5		101.5%	38.3%						
S/DEPTH# .4		1.985	2.182						
S/DEPTH# .3		102.4%	38.6%						
S/DEPTH# .2		.974	1.182						
S/DEPTH# .1		.000	.000						
S/DEPTH# .0		.000	.000						
S/DEPTH# .9		.000	.000						
S/DEPTH# .8		.000	.000						
S/DEPTH# .7		.000	.000						
S/DEPTH# .6		.000	.000						
S/DEPTH# .5		.000	.000						
S/DEPTH# .4		.000	.000						
S/DEPTH# .3		.000	.000						
S/DEPTH# .2		.000	.000						
S/DEPTH# .1		.000	.000						
S/DEPTH# .0		.000	.000						

TABLE V DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

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TABLE V DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

ETA/HEIGHT =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	29.9	25.0	25.0	11.4	11.4	31.2	31.2	44.0	74.4
SURFACE	0.00	12.276	20.096	23.637	23.493	17.786	11.295	4.066	.000
S/DEPTH=1.3	*****	65.2X	58.3X	48.4X	22.0X	24.9X	89.8X	210.9X	*****
S/DEPTH=1.2	*****	11.004							
S/DEPTH=1.1	*****	61.2X							
S/DEPTH=1.0	*****	9.205	17.198	23.111					
S/DEPTH=.9	*****	57.3X	54.5X	49.6X					
S/DEPTH=.8	*****	7.708	14.497	19.675					
S/DEPTH=.7	*****	54.9X	52.2X	47.5X					
S/DEPTH=.6	*****	6.452	12.204	16.708	20.970				
S/DEPTH=.5	*****	52.6X	50.0X	45.6X	29.7X	16.414	11.284		
S/DEPTH=.4	*****	5.389	10.244	14.131	18.090	8.8X	77.5X		
S/DEPTH=.3	*****	50.4X	48.0X	43.8X	28.6X	14.400	10.136		
S/DEPTH=.2	*****	4.480	8.554	11.878	15.472	7.8X	72.1X	3.875	.000
S/DEPTH=.1	*****	48.4X	46.1X	42.1X	27.7X	12.442	8.938	226.2X	*****
S/DEPTH=.0	*****	3.695	7.081	9.889	13.078	7.0X	67.6X	216.9X	*****
S/DEPTH=.9	*****	46.6X	44.4X	40.5X	26.8X	10.542	7.704	3.056	.000
S/DEPTH=.8	*****	3.009	5.785	8.118	10.876	6.3X	64.1X	205.4X	*****
S/DEPTH=.7	*****	45.0X	42.9X	39.2X	26.0X	6.446	6.446	2.594	.000
S/DEPTH=.6	*****	2.401	4.628	6.521	8.832	5.8X	61.2X	196.2X	*****
S/DEPTH=.5	*****	43.6X	41.6X	38.0X	25.3X	5.171	59.0X	2.106	.000
S/DEPTH=.4	*****	1.853	3.580	5.062	6.916	5.4X	57.3X	1.597	.000
S/DEPTH=.3	*****	42.4X	40.5X	37.1X	24.7X	5.135	56.1X	1.073	.000
S/DEPTH=.2	*****	1.352	2.616	3.708	5.101	5.0X	55.4X	.539	.000
S/DEPTH=.1	*****	41.5X	39.6X	36.3X	24.3X	4.8X	55.4X	.000	.000
S/DEPTH=.0	*****	.884	1.712	2.431	3.360	.000	.000	.000	.000
S/DEPTH=.9	*****	43.7	41.6X	35.7X	23.9X	1.668	1.698	.000	.000
S/DEPTH=.8	*****	4.37	8.46	12.03	16.68	.000	.000	.000	.000
S/DEPTH=.7	*****	43.7	41.6X	35.7X	23.9X	.000	.000	.000	.000
S/DEPTH=.6	*****	4.37	8.46	12.03	16.68	.000	.000	.000	.000
S/DEPTH=.5	*****	4.37	8.46	12.03	16.68	.000	.000	.000	.000
S/DEPTH=.4	*****	4.37	8.46	12.03	16.68	.000	.000	.000	.000
S/DEPTH=.3	*****	4.37	8.46	12.03	16.68	.000	.000	.000	.000
S/DEPTH=.2	*****	4.37	8.46	12.03	16.68	.000	.000	.000	.000
S/DEPTH=.1	*****	4.37	8.46	12.03	16.68	.000	.000	.000	.000
S/DEPTH=.0	*****	4.37	8.46	12.03	16.68	.000	.000	.000	.000

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TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.713	.657	.530	.390	.146	.061	.180	.266	.287
	29.9%	25.0%	11.4%	11.1%	120.1%	313.2%	51.8%	44.0%	74.4%
SURFACE	26.608	22.210	14.108	7.590	1.350	.017	.530	.1366	.1620
S/DEPTH#1.3	45.1%	36.9%	12.3%	31.6%	249.0%	*****	*****	66.3%	94.3%
S/DEPTH#1.2	20.076	18.509	24.3%	7.318					
S/DEPTH#1.1	14.793	13.712	10.889	24.1%					
S/DEPTH#1.0	18.2%	14.4%	1.8%	5.618					
S/DEPTH#0.9	10.890	10.141	8.166	24.9%					
S/DEPTH#0.8	14.1%	10.5%	1.2%	4.271					
S/DEPTH#0.7	7.985	7.465	6.083	25.6%	1.152				
S/DEPTH#0.6	10.4%	7.1%	3.4%	20.4	.923	.009	.528		
S/DEPTH#0.5	5.809	4.450	4.486	26.3%	*****	*****	*****	1.175	1.447
S/DEPTH#0.4	7.1%	4.0%	6.2%	3.260	.720	.003	.372	*****	117.6%
S/DEPTH#0.3	4.173	3.926	8.3%	26.9%	*****	*****	*****	870	1.085
S/DEPTH#0.2	4.4%	1.2%	2.318	27.4%	.544	.002	.257	*****	*****
S/DEPTH#0.1	2.939	2.772	10.1%	1.185	.394	.002	.172	*****	.782
S/DEPTH#0.0	1.8%	1.899	11.7%	*****	*****	*****	*****	*****	*****
S/DEPTH#0.9	1.8%	3.2%	1.052	.786	.270	.002	.111	*****	.535
S/DEPTH#0.8	1.314	1.244	*****	*****	*****	*****	*****	*****	*****
S/DEPTH#0.7	*****	*****	644	.485	.171	.001	.066	*****	.338
S/DEPTH#0.6	*****	*****	350	.265	.095	.001	.035	*****	*****
S/DEPTH#0.5	*****	*****	152	.115	.042	.001	.015	*****	.083
S/DEPTH#0.4	*****	*****	.037	.028	.010	.000	.004	*****	.021
S/DEPTH#0.3	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH#0.2	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH#0.1	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH#0.0	*****	*****	*****	*****	*****	*****	*****	*****	*****

TABLE VIII—DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

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TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.713	.657	.530	.390	.146	.061	.180	.266	.287
29.9%	25.0%	25.0%	11.4%	11.1%	120.1%	313.2%	51.8%	44.0%	74.4%
SURFACE	1.426	1.314	1.061	.779	.292	.122	.360	.532	.574
8/DEPTH#1.3	20.5%	24.8%	11.8%	9.2%	107.2%	274.6%	45.1%	36.7%	62.4%
8/DEPTH#1.2	24.3%	1.258							
8/DEPTH#1.1	21.2%	21.5%	1.171	.777					
8/DEPTH#1.0	19.0%	16.7%	9.9%	7.7%					
8/DEPTH# .9	16.8%	14.8%	8.1%	5.9%	.755				
8/DEPTH# .8	14.8%	12.9%	7.0%	4.9%	.730	.315			
8/DEPTH# .7	12.8%	11.2%	5.9%	4.0%	.704	.335	.360		
8/DEPTH# .6	11.0%	9.6%	4.9%	3.8%	.682	.358	49.2%	.521	.568
8/DEPTH# .5	9.4%	8.1%	3.9%	3.0%	.658	.383	51.1%	.503	.556
8/DEPTH# .4	8.0%	6.8%	3.0%	2.3%	.634	.408	52.9%	.488	.545
8/DEPTH# .3	6.9%	5.8%	2.3%	1.7%	.600	.433	54.6%	.474	.536
8/DEPTH# .2	5.9%	4.9%	1.7%	1.3%	.568	.458	56.3%	.463	.528
8/DEPTH# .1	5.3%	4.3%	1.3%	1.0%	.534	.483	57.8%	.455	.522
8/DEPTH# .0	4.8%	3.9%	1.0%	.8%	.500	.508	59.1%	.445	.515
	4.7%	3.8%	.9%	.7%	.466	.531	60.0%	.443	.514
					.433	.556	60.7%	.443	.514
					.400	.581	60.9%	.443	.514
					.367	.606		.443	.514
					.334	.631		.443	.514
					.301	.656		.443	.514
					.268	.681		.443	.514
					.235	.706		.443	.514
					.202	.731		.443	.514
					.169	.756		.443	.514
					.136	.781		.443	.514
					.103	.806		.443	.514
					.070	.831		.443	.514
					.037	.856		.443	.514
					.004	.881		.443	.514

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TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.055	.099	.125	.119	.047	.027	.061	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.003	.001	.002	.008	.019	.023	.012	.020	.034
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

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TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.783 (9.4%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.396 (=26.2%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.434 (=22.9%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.830 (=24.5%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.704 (=21.6%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.846 (2.3%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.863 (=16.8%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.941 (=21.5%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.237 (=21.4%)

CASE 6=C

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.071436	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.018978	STREAM FUNCTION	.000097
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.130333	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.034297	STREAM FUNCTION	.000218
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.412384	STREAM FUNCTION	.538307
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.152354	STREAM FUNCTION	.100862

ITERATIONS ON ETA FAILED TO CONVERGE IN 40 ITER

CASE 6=D

8TH ORDER STREAM FUNCTION WAVE THEORY

LO ■ DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO=(G/6.28318)*T**2$
 DEFINITIONS
 H ■ WAVE HEIGHT G ■ GRAVITATIONAL CONSTANT
 T ■ WAVE PERIOD X(N) ■ NTH STREAM FUNCTION COEFFICIENT
 DPT ■ WATER DEPTH L ■ WAVE LENGTH
 PSI ■ VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO ■ .073041 DPT/LO ■ .100002
 H/DPT ■ .730398
 L/LO ■ .624414 PSI/(G*H*T) ■ -.007316

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) ■ -.410823=01 X(2)/(H*T*G) ■ -.518243=02
 X(3)/(H*T*G) ■ -.628079=03 X(4)/(H*T*G) ■ -.688367=04
 X(5)/(H*T*G) ■ -.953495=05 X(6)/(H*T*G) ■ -.119008=05
 X(7)/(H*T*G) ■ -.252790=06 X(8)/(H*T*G) ■ -.182720=06

TABLE 1. DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD... DEFINED IN EQUATION (22)

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CASE 6=D

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA ETA/HEIGHT	0 782 36.0%	10.0 594 17.0%	20.0 417 12.6%	30.0 279 55.2%	50.0 79 305.9%	75.0 100.0 151 205 129.0%	100.0 130.0 205 205 129.0%
SURFACE	.000	41.613	42.085	35.997	26.146	13.683	7.373
S/DEPTH#1.5	*****	87.7%	76.2%	59.2%	16.5%	-97.2%	-271.9%
S/DEPTH#1.4	*****						
S/DEPTH#1.3	*****	37.880	41.722				
S/DEPTH#1.2	*****	86.5%	76.9%	35.427			
S/DEPTH#1.1	*****	28.674	74.2%	62.9%			
S/DEPTH#1.0	*****	83.2%	74.2%	31.046			
S/DEPTH#0.9	*****	22.345	28.177	27.054			
S/DEPTH#0.8	*****	60.1%	71.2%	58.7%			
S/DEPTH#0.7	*****	17.576	64.7%	23.574			
S/DEPTH#0.6	*****	76.8%	19.610	22.958			
S/DEPTH#0.5	*****	73.3%	64.7%	26.2%			
S/DEPTH#0.4	*****	11.421	16.608	20.823			
S/DEPTH#0.3	*****	69.6%	61.2%	53.2%			
S/DEPTH#0.2	*****	9.439	14.240	18.171			
S/DEPTH#0.1	*****	65.9%	57.8%	50.3%			
S/DEPTH#0.0	*****	7.926	12.383	16.168			
S/DEPTH#0.9	*****	62.1%	54.2%	47.2%			
S/DEPTH#0.8	*****	58.4%	50.941	44.2%			
S/DEPTH#0.7	*****	54.8%	51.1%	44.7%			
S/DEPTH#0.6	*****	50.903	48.1%	42.3%			
S/DEPTH#0.5	*****	54.8%	48.1%	42.3%			
S/DEPTH#0.4	*****	51.5%	45.6%	40.2%			
S/DEPTH#0.3	*****	47.77	45.6%	40.2%			
S/DEPTH#0.2	*****	48.7%	45.6%	40.2%			
S/DEPTH#0.1	*****	44.57	43.6%	38.4%			
S/DEPTH#0.0	*****	46.6%	43.6%	38.4%			
S/DEPTH#0.9	*****	42.71	42.4%	37.4%			
S/DEPTH#0.8	*****	45.2%	42.4%	37.4%			
S/DEPTH#0.7	*****	42.11	41.9%	37.0%			
S/DEPTH#0.6	*****	44.7%	41.9%	37.0%			
S/DEPTH#0.5	*****						
S/DEPTH#0.4	*****						
S/DEPTH#0.3	*****						
S/DEPTH#0.2	*****						
S/DEPTH#0.1	*****						
S/DEPTH#0.0	*****						

CASE 6-D

TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)									
THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	782	594	417	229	979	1071	1151	205	218
	36.0%	17.0%	12.8%	55.2%	305.9%	281.5%	42.6%	86.6%	129.0%
SURFACE	-17.025	-16.944	-3.015	4.983	13.027	13.840	9.137	3.464	2.496
S/DEPTH#1.5	27.2%	29.6%	-252.1%	271.4%	121.9%	64.0%	-21.8%	-345.7%	-538.9%
S/DEPTH#1.4	100.0%								
S/DEPTH#1.3	32.982	19.444							
S/DEPTH#1.2	62.4%	38.6%	-3.319						
S/DEPTH#1.1	32.669	23.038	-22.0%						
S/DEPTH#1.0	62.3%	48.4%	-25.313	4.786					
S/DEPTH#0.9	30.419	50.2%	-26.1%	280.5%					
S/DEPTH#0.8	60.3%	22.030	-10.599	626					
S/DEPTH#0.7	27.041	49.6%	4.7%	*****					
S/DEPTH#0.6	57.7%	20.052	-11.296	-1.921	11.108				
S/DEPTH#0.5	54.6%	47.9%	15.5%	-321.3%	133.2%	12.663			
S/DEPTH#0.4	20.554	-17.809	-11.069	-3.357	8.335	76.7%	8.121	3.377	2.433
S/DEPTH#0.3	51.8%	45.9%	20.0%	-125.8%	144.8%	10.472	7.5%	357.2%	100.0%
S/DEPTH#0.2	17.581	-15.515	-10.305	-4.032	6.159	78.9%	7.005	3.116	2.223
S/DEPTH#0.1	49.0%	43.7%	21.8%	-72.3%	158.2%	8.582	3.12%	378.3%	617.5%
S/DEPTH#0.0	14.837	-13.872	9.240	-4.191	174.5%	81.0%	5.918	2.772	1.964
S/DEPTH#0.9	46.3%	41.3%	22.3%	-40.6%	3.212	82.9%	2%	346.6%	660.8%
S/DEPTH#0.8	12.308	-11.123	-8.014	-35.9%	193.5%	5.493	4.864	2.372	1.672
S/DEPTH#0.7	43.9%	39.4%	22.1%	-35.9%	2.256	84.6%	2.9%	23.5%	655.8%
S/DEPTH#0.6	9.970	-9.078	-6.708	-28.5%	215.1%	84.6%	3.845	1.934	1.559
S/DEPTH#0.5	41.8%	37.6%	21.6%	-28.5%	1.543	4.210	5.0%	306.1%	*****
S/DEPTH#0.4	7.789	-7.132	-5.370	-23.9%	*****	86.1%	5.0%	1.070	1.031
S/DEPTH#0.3	40.1%	36.0%	21.0%	-23.9%	1.011	87.3%	6.6%	*****	*****
S/DEPTH#0.2	5.733	-5.271	-4.022	-3.321	*****	87.3%	1.890	*****	*****
S/DEPTH#0.1	38.7%	34.8%	20.5%	-21.1%	*****	86.1%	7.6%	*****	*****
S/DEPTH#0.0	3.771	-3.477	-2.677	-1.578	*****	86.1%	7.6%	*****	*****
S/DEPTH#0.9	37.6%	33.8%	20.0%	*****	*****	86.1%	7.6%	*****	*****
S/DEPTH#0.8	1.070	-1.727	-1.337	-0.798	*****	86.1%	7.6%	*****	*****
S/DEPTH#0.7	37.0%	33.3%	20.0%	*****	*****	86.1%	7.6%	*****	*****
S/DEPTH#0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S/DEPTH#0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S/DEPTH#0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S/DEPTH#0.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S/DEPTH#0.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S/DEPTH#0.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S/DEPTH#0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

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CASE 6=0

TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	36.0%	.782	.594	.417	.279	.079	.071	.151	.218
		17.0%	12.8%	12.8%	55.2%	305.9%	281.5%	42.6%	129.0%
SURFACE	.000	17.655	22.117	22.429	19.538	13.158	7.812	2.683	.000
S/DEPTH=1.5	*****	75.2%	61.2%	44.5%	4.5%	-70.5%	-172.2%	-345.5%	*****
S/DEPTH=1.4	*****								
S/DEPTH=1.3	*****	16.323	21.935						
S/DEPTH=1.2	*****	68.7%	62.8%	22.295					
S/DEPTH=1.1	*****	65.5%	60.2%	51.4%					
S/DEPTH=1.0	*****	62.5%	57.6%	49.5%					
S/DEPTH=.9	*****	59.6%	55.1%	47.6%	18.061				
S/DEPTH=.8	*****	56.9%	52.8%	45.8%	22.6%				
S/DEPTH=.7	*****	54.4%	50.6%	44.1%	22.0%				
S/DEPTH=.6	*****	52.2%	48.7%	42.5%	21.5%				
S/DEPTH=.5	*****	50.3%	46.9%	41.1%	20.9%				
S/DEPTH=.4	*****	48.6%	45.4%	39.9%	20.3%				
S/DEPTH=.3	*****	47.2%	44.2%	38.8%	19.9%				
S/DEPTH=.2	*****	46.1%	43.2%	38.0%	19.5%				
S/DEPTH=.1	*****	45.3%	42.5%	37.4%	19.3%				
S/DEPTH=.0	*****	44.3%	41.0%	37.1%	18.7%				
	*****	43.3%	40.0%	36.0%	18.0%				
	*****	42.3%	39.0%	35.0%	17.3%				
	*****	41.3%	38.0%	34.0%	16.6%				
	*****	40.3%	37.0%	33.0%	15.9%				
	*****	39.3%	36.0%	32.0%	15.2%				
	*****	38.3%	35.0%	31.0%	14.5%				
	*****	37.3%	34.0%	30.0%	13.8%				
	*****	36.3%	33.0%	29.0%	13.1%				
	*****	35.3%	32.0%	28.0%	12.4%				
	*****	34.3%	31.0%	27.0%	11.7%				
	*****	33.3%	30.0%	26.0%	11.0%				
	*****	32.3%	29.0%	25.0%	10.3%				
	*****	31.3%	28.0%	24.0%	9.6%				
	*****	30.3%	27.0%	23.0%	8.9%				
	*****	29.3%	26.0%	22.0%	8.2%				
	*****	28.3%	25.0%	21.0%	7.5%				
	*****	27.3%	24.0%	20.0%	6.8%				
	*****	26.3%	23.0%	19.0%	6.1%				
	*****	25.3%	22.0%	18.0%	5.4%				
	*****	24.3%	21.0%	17.0%	4.7%				
	*****	23.3%	20.0%	16.0%	4.0%				
	*****	22.3%	19.0%	15.0%	3.3%				
	*****	21.3%	18.0%	14.0%	2.6%				
	*****	20.3%	17.0%	13.0%	1.9%				
	*****	19.3%	16.0%	12.0%	1.2%				
	*****	18.3%	15.0%	11.0%	.5%				
	*****	17.3%	14.0%	10.0%	0.0%				
	*****	16.3%	13.0%	9.0%	0.0%				
	*****	15.3%	12.0%	8.0%	0.0%				
	*****	14.3%	11.0%	7.0%	0.0%				
	*****	13.3%	10.0%	6.0%	0.0%				
	*****	12.3%	9.0%	5.0%	0.0%				
	*****	11.3%	8.0%	4.0%	0.0%				
	*****	10.3%	7.0%	3.0%	0.0%				
	*****	9.3%	6.0%	2.0%	0.0%				
	*****	8.3%	5.0%	1.0%	0.0%				
	*****	7.3%	4.0%	0.0%	0.0%				
	*****	6.3%	3.0%	0.0%	0.0%				
	*****	5.3%	2.0%	0.0%	0.0%				
	*****	4.3%	1.0%	0.0%	0.0%				
	*****	3.3%	0.0%	0.0%	0.0%				
	*****	2.3%	0.0%	0.0%	0.0%				
	*****	1.3%	0.0%	0.0%	0.0%				
	*****	0.3%	0.0%	0.0%	0.0%				
	*****	0.0%	0.0%	0.0%	0.0%				

CASE 6=D

TABLE VII=DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	160.0
ETA/HEIGHT=	.782	.594	.417	.279	.079	.071	.151	.205	.218
	36.0%	17.0%	=12.6%	=55.2%	=305.9%	281.5%	42.6%	=86.8%	=129.0%
SURFACE	41.953	21.752	9.962	4.469	.592	.032	.363	.789	.922
	56.5%	19.8%	=53.2%	=171.6%	*****	*****	*****	*****	*****
S/DEPTH=1.5	32.222								
	100.0%								
S/DEPTH=1.4	28.588								
	19.3%								
S/DEPTH=1.3	16.066								
	1.2%		9.844						
S/DEPTH=1.2	11.536		7.467	4.430					
	=3.0%		=43.2%	=105.0%					
S/DEPTH=1.1	8.325		5.625	3.478					
	=12.4%		=46.9%	=101.7%					
S/DEPTH=1.0	6.011		4.201	2.689	.542				
	19.0%		=50.3%	=99.5%	*****	.022			
S/DEPTH=.9	4.321		3.103	2.045	.453				
	=24.9%		=53.6%	*****	*****	*****	.269	.689	.830
S/DEPTH=.8	3.075		2.847	1.523	.366	.010	*****	*****	*****
	=30.0%		=56.4%	*****	*****	*****	.188	.515	.625
S/DEPTH=.7	2.150		1.606	1.106	.285	.004	*****	*****	*****
	=30.5%		*****	*****	*****	*****	.128	.370	.453
S/DEPTH=.6	1.462		1.165	.775	.211	.001	*****	*****	*****
	*****		*****	*****	*****	*****	.083	.252	.310
S/DEPTH=.5	.952	.891	.729	.517	.147	.000	*****	*****	*****
	*****	*****	*****	*****	*****	*****	.050	.158	.197
S/DEPTH=.4	.576	.542	.447	.320	.095	.000	*****	*****	*****
	*****	*****	*****	*****	*****	*****	.027	.088	.110
S/DEPTH=.3	.312	.293	.243	.175	.053	.000	*****	*****	*****
	*****	*****	*****	*****	*****	*****	.012	.039	.048
S/DEPTH=.2	.135	.127	.105	.077	.024	.000	*****	*****	*****
	*****	*****	*****	*****	*****	*****	.003	.010	.012
S/DEPTH=.1	.033	.031	.026	.019	.006	.000	*****	*****	*****
	*****	*****	*****	*****	*****	*****	.000	.000	.000
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	*****	*****	*****

CASE 6=D

TABLE VIII=DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.782	.594	.417	.279	.079	.071	.151	.205	.218
	36.0%	17.0%	12.8%	55.2%	305.9%	281.5%	42.6%	86.8%	129.0%
SURFACE	.000	17.686	18.677	16.336	11.402	6.282	3.343	1.066	.000
S/DEPTH#1.5	*****	80.8%	65.10%	43.4%	11.8%	110.4%	213.1%	314.4%	*****
S/DEPTH#1.4	*****								
S/DEPTH#1.3	*****	15.799	18.439	16.175					
S/DEPTH#1.2	*****	78.5%	67.6%	55.4%					
S/DEPTH#1.1	*****	11.318	13.703	12.352					
S/DEPTH#1.0	*****	70.3%	64.8%	53.3%					
S/DEPTH# .9	*****	5.848	10.122	9.103	9.883				
S/DEPTH# .8	*****	67.1%	62.0%	51.1%	24.1%	5.672			
S/DEPTH# .7	*****	4.194	59.2%	49.0%	23.3%	4.479			
S/DEPTH# .6	*****	63.9%	53.79	46.8%	22.6%	41.6%	164.7%	357.8%	.000
S/DEPTH# .5	*****	2.987	56.4%	50.22	22.4%	3.417	2.168	.770	.000
S/DEPTH# .4	*****	60.8%	53.8%	46.8%	21.8%	38.0%	152.0%	.586	.000
S/DEPTH# .3	*****	57.9%	44.8%	42.9%	21.1%	35.1%	141.8%	.419	.000
S/DEPTH# .2	*****	55.1%	49.0%	41.2%	20.9%	32.8%	133.7%	.275	.000
S/DEPTH# .1	*****	52.6%	47.0%	39.7%	19.8%	31.1%	120.7%	.157	.000
S/DEPTH# .0	*****	.628	.715	.581	.680	.614	.5420	.071	.000
S/DEPTH# .9	*****	.377	.385	.331	.397	.272	.188	.018	.000
S/DEPTH# .8	*****	.202	.166	.230	.074	.066	.047	.000	.000
S/DEPTH# .7	*****	.087	.041	.056	.000	.000	.000	.000	.000
S/DEPTH# .6	*****	.021	.000	.000	.000	.000	.000	.000	.000
S/DEPTH# .5	*****	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH# .4	*****	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH# .3	*****	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH# .2	*****	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH# .1	*****	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH# .0	*****	.000	.000	.000	.000	.000	.000	.000	.000

TABLE 1. DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD... DEFINED IN EQUATION (29)

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CASE 6=D

TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.143	.247	.294	.248	.088	.046	.099	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.009	.010	.014	.020	.031	.031	.010	.033	.050
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.036	.011	.009	.007	.005	.000	.001	.003	.006

CASE 60D

TABLE XI=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH	
	DEFINED IN EQUATION (37)	
	.824	(13.9%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY	
	DEFINED IN EQUATION (38)	
	.286	(75.0%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY	
	DEFINED IN EQUATION (39)	
	.332	(67.9%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY	
	DEFINED IN EQUATION (40)	
	.616	(71.2%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX	
	DEFINED IN EQUATION (41)	
	.545	(63.7%)
(6)	DIMENSIONLESS GROUP VELOCITY	
	DEFINED IN EQUATION (42)	
	.883	(4.4%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM	
	DEFINED IN EQUATION (43)	
	.660	(53.8%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION	
	DEFINED IN EQUATION (44)	
	.720	(61.3%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION	
	DEFINED IN EQUATION (45)	
	.175	(53.9%)

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TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.151971	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.029199	STREAM FUNCTION	.006134
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.296932	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.050487	STREAM FUNCTION	.037659
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.585829	STREAM FUNCTION	.893143
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.185364	STREAM FUNCTION	.246478

CASE 7-A

3TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .031267 DPT/LO = .199999

H/DPT = .156315

L/LO = .899219 PSI/(G*H*T) = -.004328

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.368465+01 X(2)/(H*T*G) = -.228970+03

X(3)/(H*T*G) = .584698+06

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TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA ETA/HEIGHT	10.0 5.44 8.1%	5.33 7.7%	20.0 5.01 6.1%	30.0 3.60 3.8%	50.0 3.06 5.0%	75.0 2.08 48.0%	100.0 1.24 30.1%	130.0 0.370 3.6%	180.0 0.456 9.7%
SURFACE	4.068	3.988	3.754	3.384	2.339	.767	-.737	2.454	3.045
S/DEPTH=1.0	4.1%	3.8%	2.9%	1.4%	3.5%	22.3%	18.1%	2.4%	5.3%
S/DEPTH= .9	3.634	3.572	3.388	3.089	2.205	.757		2.335	2.948
S/DEPTH= .8	2.8%	2.6%	2.0%	1.0%	3.0%	20.8%	.652	2.35%	6.0%
S/DEPTH= .7	3.198	3.144	2.985	2.726	1.956	.689	16.9%	2.082	2.642
S/DEPTH= .6	2.3%	2.2%	1.6%	1.7%	2.6%	17.4%	15.6%	2.2%	5.1%
S/DEPTH= .5	2.832	2.785	2.646	2.419	1.745	.627	14.7%	1.869	2.382
S/DEPTH= .4	2.0%	1.8%	1.4%	1.4%	2.3%	11.6%	12.8%	1.9%	4.3%
S/DEPTH= .3	2.527	2.486	2.363	2.163	1.566	.573	11.1%	1.692	2.164
S/DEPTH= .2	1.7%	1.5%	1.2%	1.0%	2.0%	12.2%	9.4%	1.547	1.985
S/DEPTH= .1	2.276	2.239	2.129	1.951	1.418	.527	8.3%	1.432	1.843
S/DEPTH= .0	1.4%	1.3%	1.0%	1.0%	1.7%	10.2%	7.3%	1.1%	2.6%
	2.072	2.038	1.939	1.779	1.297	.488	6.1%	1.345	1.734
	1.2%	1.2%	.9%	.8%	1.4%	8.5%	5.3%	.9%	1.658
	1.911	1.880	1.790	1.643	1.201	.456	3.14	1.284	1.597
	1.1%	1.0%	.8%	.8%	1.12%	.71%	2.6%	.8%	1.9%
	1.789	1.761	1.677	1.540	1.128	.432	1.7%	1.248	1.613
	1.0%	.9%	.7%	.7%	1.0%	.61%	1.7%	1.236	1.597
	1.704	1.678	1.598	1.468	1.077	.415	1.6%	.6%	1.6%
	.9%	.9%	.7%	.6%	.8%	.53%	.6%		
	1.654	1.628	1.551	1.425	1.046	.405	.303		
	.9%	.8%	.6%	.4%	.7%	.48%	6.1%		
	1.638	1.612	1.535	1.411	1.036	.401	.300		
	.9%	.8%	.7%	.4%	.7%	.47%	6.0%		

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TABLE II-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)									
THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	8.1%	.544	.533	.501	.306	.087	.124	.370	.456
		7.7%	6.3%	6.3%	3.8%	48.0%	30.1%	3.6%	9.7%
SURFACE	.000	.676	1.315	1.884	2.719	3.119	2.882	1.662	.000
S/DEPTH=1.0	*****	9.1%	8.4%	7.3%	4.3%	.4%	4.9%	10.3%	*****
	.000	.588	1.154	1.675	2.513	3.051			
S/DEPTH=.9	*****	7.3%	7.0%	6.3%	4.3%	.6%			.000
	.000	.496	.972	1.413	2.124	2.589	2.535	1.558	*****
S/DEPTH=.8	*****	6.5%	6.1%	5.5%	3.7%	.4%	2.145	10.1%	*****
	.000	.415	.815	1.184	1.784	2.182			.000
S/DEPTH=.7	*****	5.7%	5.4%	4.9%	3.3%	.3%	3.44%	9.1%	*****
	.000	.344	.676	.983	1.483	1.820	1.796	1.118	.000
S/DEPTH=.6	*****	5.1%	4.8%	4.3%	2.8%	.1%	3.62%	8.2%	*****
	.000	.282	.553	.805	1.216	1.495	3.0%	.926	.000
S/DEPTH=.5	*****	4.6%	4.3%	3.9%	2.5%	.0%	3.0%	7.4%	*****
	.000	.226	.443	.645	.976	1.202	1.193	.749	.000
S/DEPTH=.4	*****	4.1%	3.9%	3.5%	2.2%	.1%	2.8%	6.8%	*****
	.000	.175	.343	.500	.756	.934	.928	.585	.000
S/DEPTH=.3	*****	3.8%	3.6%	3.2%	2.0%	.1%	2.6%	6.3%	*****
	.000	.128	.251	.365	.553	.684	.681	.430	.000
S/DEPTH=.2	*****	3.3%	3.3%	2.9%	1.8%	.2%	2.5%	6.0%	*****
	.000	.084	.164	.239	.362	.448	.447	.283	.000
S/DEPTH=.1	*****	3.1%	3.1%	2.8%	1.7%	.2%	2.4%	5.7%	*****
	.000	.041	.081	.118	.179	.222	.221	.140	.000
S/DEPTH=.0	*****	3.0%	3.0%	2.7%	1.7%	.2%	2.4%	5.4%	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000

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TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA ETA/HEIGHT	0 .544 8.1%	10.0 .933 7.7%	20.0 .501 6.3%	30.0 .450 3.8%	50.0 .306 5.0%	75.0 .087 48.0%	100.0 .124 30.1%	130.0 .370 5.6%	180.0 .456 9.7%
SURFACE	.000	4.928	9.573	13.684	19.642	22.298	20.350	11.491	.000
S/DEPTH#1.0	***** .000	15.8%	14.9%	13.4%	9.82%	2.8%	6.1%	17.8%	*****
S/DEPTH# .9	***** .000	4.305	6.511	12.330	18.349	21.903			
S/DEPTH# .8	***** .000	13.6%	13.0%	12.0%	8.9%	2.7%			
S/DEPTH# .7	***** .000	3.757	7.366	10.687	15.985	19.269			
S/DEPTH# .6	***** .000	11.9%	11.4%	10.8%	7.7%	2.4%	18.555	11.055	*****
S/DEPTH# .5	***** .000	3.271	6.419	9.327	14.019	17.053	4.7%	16.7%	*****
S/DEPTH# .4	***** .000	10.4%	10.0%	9.82%	6.7%	2.0%	16.617	10.037	*****
S/DEPTH# .3	***** .000	2.873	5.642	8.210	12.395	15.204	4.0%	13.9%	*****
S/DEPTH# .2	***** .000	9.1%	8.7%	8.0%	5.8%	1.8%	14.972	9.253	*****
S/DEPTH# .1	***** .000	2.509	5.010	7.299	11.066	13.678	3.4%	11.6%	*****
S/DEPTH# .0	***** .000	7.9%	7.5%	6.9%	5.0%	1.5%	13.597	8.526	*****
		2.289	4.503	6.570	9.997	12.441	2.8%	9.6%	*****
		6.8%	6.5%	6.0%	4.4%	1.4%	12.489	7.915	*****
		2.087	4.107	5.999	9.159	11.571	2.3%	8.0%	*****
		6.0%	5.7%	5.2%	3.6%	1.2%	11.571	7.421	*****
		1.915	3.811	5.570	8.528	10.727	1.9%	6.7%	*****
		5.3%	5.0%	4.6%	3.4%	1.1%	10.887	7.039	*****
		1.829	3.605	5.273	8.089	10.212	1.6%	5.7%	*****
		4.7%	4.5%	4.2%	3.1%	1.1%	10.407	9.769	*****
		1.767	3.483	5.097	7.830	9.907	1.4%	5.0%	*****
		4.4%	4.2%	3.9%	2.9%	1.0%	10.122	6.607	*****
		1.747	3.443	5.039	7.745	9.806	1.2%	4.6%	*****
		4.3%	4.1%	3.8%	2.8%	1.0%	10.028	6.553	*****
							1.2%	4.4%	*****

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TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

THETA ETA/HEIGHT	0 8.1%	5.4 7.7%	10.0 5.33	20.0 6.3%	30.0 4.50	50.0 5.0%	75.0 48.0%	100.0 30.1%	130.0 3.6%	180.0 9.7%
SURFACE	=21.107	=20.581	=19.050	=16.650	=10.061	=7.754	7.273	14.975	17.142	
S/DEPTH=1.0	8.9%	8.3%	6.7%	3.7%	=6.3%	*****	21.5%	5.4%	=12.8%	
S/DEPTH= .9	7.2%	=18.213	=17.020	=15.101	=9.526	=8.12				
S/DEPTH= .8	=15.956	6.8%	5.5%	3.1%	=7.5%	*****	6.058	13.921	16.369	
S/DEPTH= .7	6.4%	=15.620	=14.633	=13.044	=8.411	=1.107	21.5%	5.5%	=13.7%	
S/DEPTH= .6	5.7%	6.1%	4.9%	2.8%	=6.3%	=125.6%	4.823	11.654	13.660	
S/DEPTH= .5	=11.373	=13.274	=12.461	=11.151	=7.319	=1.232	20.4%	4.0%	=12.1%	
S/DEPTH= .4	5.1%	5.4%	4.4%	2.5%	=5.4%	=85.1%	3.824	9.664	11.805	
S/DEPTH= .3	4.6%	=11.147	=10.482	=9.410	=6.266	=1.238	19.3%	4.4%	=10.8%	
S/DEPTH= .2	=9.393	4.8%	3.9%	2.2%	=4.8%	=63.7%	3.007	7.903	9.365	
S/DEPTH= .1	4.2%	=9.393	3.5%	1.9%	=4.3%	=50.8%	18.3%	4.0%	9.7%	
S/DEPTH= .0	=5.80	=7.010	=6.323	=4.299	=3.9%	*****	17.4%	3.6%	8.8%	
	3.9%	3.2%	1.7%	1.0%	=3.382	=855	1.752	4.895	5.984	
	3.6%	=5.466	=4.939	=3.634	=3.6%	*****	16.7%	3.4%	8.2%	
	=4.018	2.9%	1.6%	1.3%	=2.502	=659	1.253	3.977	4.397	
	3.4%	=3.255	=2.7%	=2.390	=3.4%	*****	16.1%	3.3%	7.6%	
	=2.794	3.4%	2.639	=1.651	=1.447	*****	807	2.341	2.885	
	3.4%	=3.2%	=2.5%	=1.485	=3.2%	*****	*****	3.0%	7.3%	
	=1.308	=1.308	2.3%	1.3%	=821	=225	395	1.157	7.1%	
	3.3%	3.1%	2.0%	1.3%	*****	*****	*****	3.0%	7.1%	
	=3.000	=3.000	*****	*****	*****	*****	*****	*****	*****	
	*****	*****	*****	*****	*****	*****	*****	*****	*****	

CASE 7=A

TABLE V=DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA ETA/HEIGHT	0 S44 8.1%	10.0 533 7.7%	20.0 501 6.3%	30.0 450 3.8%	50.0 306 5.0%	75.0 287 48.0%	100.0 124 30.1%	130.0 370 3.6%	180.0 456 9.7%
SURFACE	6.686	6.439	5.740	4.711	2.332	.288	.198	2.594	4.108
S/DEPTH=1.0	5.3%	4.9%	3.7%	1.7%	-4.9%	****	****	3.0%	6.2%
S/DEPTH= .9	5.426	5.249	4.742	3.975	2.086	.280	****	2.353	3.849
S/DEPTH= .8	3.2%	3.0%	2.2%	1.9%	-4.0%	****	****	3.3%	7.6%
S/DEPTH= .7	4.262	4.124	3.750	3.131	1.653	.228	.159	1.866	3.070
S/DEPTH= .6	2.6%	2.6%	1.9%	.8%	-3.5%	****	****	2.9%	6.5%
S/DEPTH= .5	3.355	3.247	2.939	2.471	1.312	.185	.122	2.477	2.440
S/DEPTH= .4	2.4%	2.3%	1.7%	.7%	-3.1%	****	****	2.0%	5.8%
S/DEPTH= .3	2.638	2.554	2.314	1.947	1.038	.149	.094	1.924	5.1%
S/DEPTH= .2	2.62%	2.0%	1.5%	.6%	-2.7%	****	****	1.866	4.6%
S/DEPTH= .1	2.063	1.998	1.810	1.525	.816	.118	.072	1.899	4.2%
S/DEPTH= .0	2.0%	1.8%	1.4%	.6%	-2.4%	****	****	1.678	3.8%
S/DEPTH= .9	1.592	1.542	1.398	1.179	.632	.093	.055	1.495	3.5%
S/DEPTH= .8	1.6%	1.7%	1.5%	.5%	-2.1%	****	****	1.329	3.2%
S/DEPTH= .7	1.197	1.159	1.051	.867	.477	.071	.041	1.29	3.0%
S/DEPTH= .6	1.7%	1.6%	1.2%	.5%	-1.9%	****	****	1.161	2.8%
S/DEPTH= .5	.855	.829	.752	.634	.342	.051	.029	1.086	2.6%
S/DEPTH= .4	1.6%	1.5%	1.2%	.5%	-1.8%	****	****	.899	2.4%
S/DEPTH= .3	.551	.534	.484	.409	.220	.033	.019	.713	2.2%
S/DEPTH= .2	1.6%	1.5%	1.1%	.5%	****	****	****	.678	2.0%
S/DEPTH= .1	.270	.262	.237	.200	.108	.016	.009	.5154	1.8%
S/DEPTH= .0	****	****	****	****	****	****	****	.486	1.6%
	.000	.000	.000	.000	.000	.000	.000	.313	1.4%
	****	****	****	****	****	****	****	.257	1.2%
	.000	.000	.000	.000	.000	.000	.000	.154	1.0%
	****	****	****	****	****	****	****	.000	.8%
	.000	.000	.000	.000	.000	.000	.000	.000	.6%
	****	****	****	****	****	****	****	.000	.4%
	.000	.000	.000	.000	.000	.000	.000	.000	.2%
	****	****	****	****	****	****	****	.000	.0%

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TABLE VI=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THEYA	W	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	W	.544	.533	.501	.450	.306	.087		=.370	=.456
		8.1%	7.7%	6.3%	3.8%	5.0%	48.0%	30.1%	=3.6%	=9.7%
SURFACE										
S/DEPTH=1.0	.000	2.921	5.689	8.171	11.898	13.859	13.042	7.710	.000	*****
S/DEPTH=.9	.000	10.0%	9.3%	8.2%	5.2%	.6%	3.9%	.92%	*****	
S/DEPTH=.8	.000	2.535	4.982	7.257	10.990	13.557				
S/DEPTH=.7	.000	8.3%	7.9%	7.3%	5.3%	1.6%				
S/DEPTH=.6	.000	2.131	4.190	6.108	9.277	11.503	11.476	7.235	.000	*****
S/DEPTH=.5	.000	7.4%	7.1%	6.5%	4.7%	1.4%	2.7%	.91%	*****	
S/DEPTH=.4	.000	1.780	3.502	5.110	7.780	9.690	9.720	6.178	.000	*****
S/DEPTH=.3	.000	6.7%	6.4%	5.9%	4.3%	1.3%	2.4%	.80%	*****	
S/DEPTH=.2	.000	1.474	2.900	4.235	6.462	8.080	8.143	5.211	.000	*****
S/DEPTH=.1	.000	6.1%	5.8%	5.3%	3.9%	1.2%	2.1%	.71%	*****	
S/DEPTH=.0	.000	1.203	2.339	3.461	5.291	6.638	6.717	4.323	.000	*****
S/DEPTH=.9	.000	5.6%	5.3%	4.9%	3.5%	1.1%	1.9%	.64%	*****	
S/DEPTH=.8	.000	5.62	1.894	2.769	4.240	5.334	5.415	3.502	.000	*****
S/DEPTH=.7	.000	5.2%	4.9%	4.5%	3.3%	1.0%	1.7%	.58%	*****	
S/DEPTH=.6	.000	4.73	1.465	2.142	3.284	4.141	4.215	2.737	.000	*****
S/DEPTH=.5	.000	4.8%	4.6%	4.2%	3.1%	1.0%	1.5%	.53%	*****	
S/DEPTH=.4	.000	5.3%	1.069	1.564	2.401	3.033	3.094	2.014	.000	*****
S/DEPTH=.3	.000	5.35	4.3%	4.0%	2.9%	1.0%	1.4%	.50%	*****	
S/DEPTH=.2	.000	5.35	.699	1.023	1.572	1.988	2.031	1.325	.000	*****
S/DEPTH=.1	.000	5.175	4.2%	3.8%	2.8%	.9%	1.3%	.47%	*****	
S/DEPTH=.0	.000	5.346	5.346	.506	.777	.984	1.006	.657	.000	*****
S/DEPTH=.9	.000	5.346	5.346	5.346	5.346	5.346	5.346	5.346	.000	*****
S/DEPTH=.8	.000	5.346	5.346	5.346	5.346	5.346	5.346	5.346	.000	*****
S/DEPTH=.7	.000	5.346	5.346	5.346	5.346	5.346	5.346	5.346	.000	*****
S/DEPTH=.6	.000	5.346	5.346	5.346	5.346	5.346	5.346	5.346	.000	*****
S/DEPTH=.5	.000	5.346	5.346	5.346	5.346	5.346	5.346	5.346	.000	*****
S/DEPTH=.4	.000	5.346	5.346	5.346	5.346	5.346	5.346	5.346	.000	*****
S/DEPTH=.3	.000	5.346	5.346	5.346	5.346	5.346	5.346	5.346	.000	*****
S/DEPTH=.2	.000	5.346	5.346	5.346	5.346	5.346	5.346	5.346	.000	*****
S/DEPTH=.1	.000	5.346	5.346	5.346	5.346	5.346	5.346	5.346	.000	*****
S/DEPTH=.0	.000	5.346	5.346	5.346	5.346	5.346	5.346	5.346	.000	*****

CASE 7=A

TABLE VII=DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA	0	10.0	20.0	30.0	40.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.544	.533	.501	.450	.306	.5087	.087	.124	.370	.456
	8.1%	7.7%	6.3%	3.6%	5.0%	48.0%		30.1%	3.6%	9.7%
SURFACE	4.801	4.612	4.080	3.307	1.577	.180		.128	.1522	.2,349
S/DEPTH#1.0	6.7%	6.2%	4.7%	2.8%	5.9%	*****	*****	*****	3.3%	6.5%
S/DEPTH# .9	3.486	3.370	3.041	2.544	1.525	.172			.300	.112
S/DEPTH# .8	3.7%	3.4%	2.6%	1.1%	4.7%	*****	*****	*****	3.9%	8.9%
S/DEPTH# .7	2.177	2.209	2.077	1.741	.913	.122		.091	.1300	1.408
S/DEPTH# .6	1.604	1.552	1.404	1.178	.622	*****	*****	*****	.885	.7%
S/DEPTH# .5	2.6%	2.5%	1.9%	.7%	3.6%	.086		.060	.144	.975
S/DEPTH# .4	1.085	1.031	.933	.785	.416	.059		.039	.593	.6,7%
S/DEPTH# .3	2.4%	2.2%	1.6%	.6%	3.1%	*****	*****	*****	.30%	.639
S/DEPTH# .2	2.690	.668	.605	.510	.272	.039		.024	.387	.5,6%
S/DEPTH# .1	2.1%	2.0%	1.5%	.6%	2.7%	*****	*****	*****	.26%	.402
S/DEPTH# .0	.430	.417	.378	.318	.170	.025		.015	.242	.5,1%
	1.9%	1.8%	1.3%	.5%	*****	*****	*****	*****	.142	.237
	.232	.244	.221	.187	.100	.015		.009	*****	.125
	1.8%	1.7%	*****	*****	*****	*****	*****	*****	*****	*****
	.112	.128	.116	.098	.053	.008		.004	.075	.053
	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.086	.054	.049	.041	.022	.003		.002	.032	.013
	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.014	.013	.012	.010	.005	.001		.000	.008	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000		.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.544	.501	.450	.306	.087	.124	.370	.456
	8.1%	6.3%	3.8%	5.0%	48.0%	30.1%	3.6%	9.7%
SURFACE	.000	3.629	5.155	7.271	8.055	7.201	3.996	.000
S/DEPTH=1.0	1.876	11.3%	9.9%	6.0%	.1%	5.4%	11.1%	*****
	12.2%	2.694	4.208	6.341	7.750			
S/DEPTH=.9	9.7%	9.2%	8.3%	6.8%	1.8%	5.728	3.558	.000
	1.089	2.140	3.116	4.712	5.796	3.2%	11.0%	*****
S/DEPTH=.8	8.6%	8.2%	7.6%	5.5%	1.6%	4.233	2.659	.000
	.791	1.555	2.266	3.437	4.253	2.8%	9.2%	*****
S/DEPTH=.7	7.7%	7.3%	6.7%	4.9%	1.4%	3.049	1.934	.000
	.561	1.103	1.609	2.447	3.044	2.5%	8.1%	*****
S/DEPTH=.6	6.9%	6.6%	6.0%	4.4%	1.3%	2.121	1.356	.000
	.385	.757	1.105	1.689	2.106	2.1%	7.2%	*****
S/DEPTH=.5	5.9%	5.9%	5.4%	3.9%	1.2%	1.404	.904	.000
	.252	.495	.724	1.106	1.388	1.9%	6.4%	*****
S/DEPTH=.4	5.3%	5.3%	4.9%	3.5%	1.1%	.863	.559	.000
	.153	.302	.441	.675	.850	1.7%	5.7%	*****
S/DEPTH=.3	.083	.163	.239	.366	.462	1.5%	.306	.000
	.036	.070	.103	.158	.200	1.2%	.133	.000
S/DEPTH=.2	.009	.017	.025	.039	.049	.9%	.031	.000
	.000	.000	.000	.000	.000	.8%	.000	.000
S/DEPTH=.1	.000	.000	.000	.000	.000	.7%	.000	.000
	.000	.000	.000	.000	.000	.6%	.000	.000
S/DEPTH=.0	.000	.000	.000	.000	.000	.5%	.000	.000

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TABLE IX=DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA =	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.544	.533	.501	.450	.306	.087	.370	.456
	8.1%	7.7%	6.3%	3.8%	5.0%	48.0%	30.1%	9.7%
SURFACE	1.089	1.067	1.002	.900	.612	.175	.248	.911
S/DEPTH=1.0	4.9%	4.6%	3.7%	2.2%	2.8%	25.5%	15.1%	4.5%
	.981	.964	.912	.829	.582	.174		
S/DEPTH= .9	3.7%	3.5%	2.8%	1.8%	2.3%	24.0%	.214	.880
	.871	.856	.812	.740	.525	.168	14.9%	5.1%
S/DEPTH= .8	3.3%	3.1%	2.6%	1.7%	1.8%	16.8%	180	.784
	.777	.764	.726	.663	.475	.160	13.8%	4.2%
S/DEPTH= .7	2.9%	2.8%	2.3%	1.6%	1.4%	14.9%	152	.703
	.698	.687	.653	.598	.432	.153	12.7%	3.3%
S/DEPTH= .6	2.7%	2.5%	2.1%	1.5%	1.0%	11.9%	.9%	.636
	.632	.622	.592	.543	.395	.145	11.7%	.5%
S/DEPTH= .5	2.4%	2.3%	2.0%	1.4%	.7%	9.5%	11.4	.581
	.578	.569	.542	.498	.365	.138	10.7%	.538
S/DEPTH= .4	2.2%	2.1%	1.9%	1.4%	.4%	7.6%	10.1	.4%
	.535	.527	.502	.462	.340	.132	.4%	.505
S/DEPTH= .3	2.1%	2.0%	1.8%	1.4%	.2%	6.2%	9.9%	1.0%
	.503	.495	.472	.435	.322	.127	.388	.482
S/DEPTH= .2	2.0%	1.9%	1.7%	1.4%	.0%	5.1%	9.3%	.7%
	.480	.473	.451	.416	.308	.124	.085	.463
S/DEPTH= .1	1.9%	1.8%	1.7%	1.4%	.2%	4.3%	8.7%	.5%
	.466	.459	.439	.404	.301	.121	.358	.4%
S/DEPTH= .0	1.9%	1.8%	1.6%	1.4%	.3%	3.9%	.081	.355
	.462	.455	.434	.401	.298	.121	.080	.6%
	1.9%	1.8%	1.6%	1.4%	.3%	3.7%	8.3%	.4%

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TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.006	.011	.014	.015	.007	.005	.012	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.018	.017	.013	.007	.007	.020	.019	.007	.024
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

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TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.899 (1.1%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.494 (.1.1%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.501 (.1.7%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.995 (.1.8%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.673 (.7%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.676 (.7%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.997 (.8%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.844 (.3%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.171 (4.1%)

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TABLE XI(CONT)-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.009999	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.015081	STREAM FUNCTION	.000070
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.015900	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.024070	STREAM FUNCTION	.000114
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.137254	STREAM FUNCTION	.141447
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.096263	STREAM FUNCTION	.105035

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5TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO=(G/6.28318)*T**2$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .062890 DPT/LO = .199999

H/DPT = .312451

L/LO = .931055 PSI/(G*H*T) = -.008220

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.374631=01 X(2)/(H*T*G) = -.577025=03

X(3)/(H*T*G) = -.126846=05 X(4)/(H*T*G) = .661276=07

X(5)/(H*T*G) = -.290160=08

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

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TABLE II=DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD.....DEFINED IN EQUATION (22)

THETA ETA/HEIGHT	0 .593 15.7%	10.0 .576 14.5%	20.0 .527 10.6%	30.0 .453 4.5%	50.0 .270 18.9%	75.0 .038 236.9%	100.0 =152 43.1%	130.0 =345 10.9%	180.0 =407 22.9%
SURFACE	.000	.855	1.621	2.236	2.941	2.996	2.500	1.286	.000
8/DEPTH=1.1	***** .000	19.0% .743	16.8% 1.447	13.3% 2.080	4.3%	7.9%	18.4%	29.1%	***** *****
9/DEPTH=1.0	***** .000	14.1% 1.622	13.2% 1.313	11.7% 1.746	2.508	2.938	2.306	1.125	***** .000
9/DEPTH=.9	***** .000	12.3% 1.519	11.5% 1.014	10.1% 1.461	5.6% 2.143	5.2% 2.494	14.0% 1.963	28.7%	***** .000
8/DEPTH=.8	***** .000	10.7% 1.432	10.0% .843	8.7% 1.217	4.6% 1.792	3.4% 2.102	13.0% 1.963	25.9%	***** .000
9/DEPTH=.7	***** .000	9.4% 1.356	8.6% 1.096	7.5% 1.005	3.7% 1.485	3.5% 1.754	13.0% 1.652	23.7%	***** .000
9/DEPTH=.6	***** .000	8.2% 1.290	7.5% .967	6.8% .819	2.9% 1.214	3.6% 1.442	12.1% 1.368	21.9%	***** .000
8/DEPTH=.5	***** .000	7.2% 1.231	6.6% .852	5.6% .654	2.3% 1.072	3.7% 1.160	11.4% 1.107	20.5%	***** .000
9/DEPTH=.4	***** .000	6.4% 1.178	5.8% .849	4.9% .505	1.9% 1.752	3.7% .901	10.8% .864	18.7%	***** .000
8/DEPTH=.3	***** .000	5.7% 1.130	5.2% .855	4.3% .469	1.5% .550	3.7% .660	10.3% .636	16.7%	***** .000
9/DEPTH=.2	***** .000	***** .085	4.7% .666	3.9% .421	1.2% .360	3.7% .433	9.9% .418	15.5%	***** .000
8/DEPTH=.1	***** .000	***** .042	4.0% .582	3.6% .419	1.0% .178	3.7% .214	9.6% .207	12.5%	***** .000
8/DEPTH=.0	***** .000	***** .000	***** .000	***** .000	***** .000	***** .000	9.5% .000	10.0%	***** .000

CASE 7=B

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA ETA/HEIGHT	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
	.593	.576	.527	.453	.270	.038	.152	.305	.407
	15.7%	14.5%	10.8%	4.5%	-18.9%	-236.9%	43.1%	-10.9%	-22.9%
SURFACE	.000	6.618	12.485	17.094	22.044	21.783	17.554	8.577	.000
S/DEPTH#1.1	*****	32.0%	29.6%	25.7%	14.9%	-2.3%	-21.5%	-50.3%	*****
	.000	5.751	11.164	15.930					
S/DEPTH#1.0	*****	27.3%	26.1%	24.0%	19.360	21.448			
	.000	4.849	9.432	13.505	15.1%	1.4%			
S/DEPTH# .9	*****	24.6%	23.5%	21.5%	16.696	18.898	16.705		
	.000	4.116	8.023	11.525	13.42%	1.2%			
S/DEPTH# .8	*****	22.0%	21.0%	19.2%	14.506	16.748	-16.9%		
	.000	3.523	6.878	9.912	11.8%	1.1%			
S/DEPTH# .7	*****	19.6%	18.7%	17.1%	12.714	14.951	-14.2%		
	.000	3.043	5.953	8.605	10.4%	1.1%			
S/DEPTH# .6	*****	17.4%	16.6%	15.1%	11.262	13.467	-11.9%		
	.000	2.659	5.211	7.554	9.12%	1.1%			
S/DEPTH# .5	*****	15.3%	14.7%	13.4%	10.103	12.264	-9.9%		
	.000	2.356	4.625	6.722	8.2%	1.1%			
S/DEPTH# .4	*****	13.7%	13.0%	11.9%	9.201	11.314	-8.8%		
	.000	2.122	4.171	6.077	7.4%	1.2%			
S/DEPTH# .3	*****	12.2%	11.6%	10.6%	8.526	10.556	-8.6%		
	.000	1.948	3.834	5.597	6.7%	1.3%			
S/DEPTH# .2	*****	11.0%	10.5%	9.6%	8.058	10.045	-5.7%		
	.000	1.828	3.601	5.265	6.2%	1.4%			
S/DEPTH# .1	*****	10.1%	9.6%	8.8%	7.783	9.798	-6.4%		
	.000	1.758	3.465	5.071	6.0%	1.4%			
S/DEPTH# .0	*****	9.5%	9.1%	8.4%	7.692	9.700	-6.8%		
	.000	1.735	3.420	5.006	5.9%	1.4%			
	*****	9.4%	8.9%	8.2%					

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TABLE IV=DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

THETA ETA/HEIGHT	10.0 593 15.7%	20.0 527 10.8%	30.0 453 4.5%	50.0 270 -18.9%	75.0 100.0 43.1%	100.0 130.0 -10.9%	180.0 -907 -22.9%
SURFACE	=21.464	=20.567	=14.389	=5.679	3.950	9.975	13.268
S/DEPTH#1.1	18.4%	16.9%	3.4%	=46.5%	98.6%	21.7%	13.516
S/DEPTH#1.0	=19.418	=18.768	=13.882				=36.1%
S/DEPTH# .9	14.7%	13.6%	3.0%		3.747		
S/DEPTH# .8	=17.056	=16.528	=12.546	=5.766	105.5%	8.603	
S/DEPTH# .7	13.1%	12.1%	2.9%	=34.9%	2.356	25.1%	12.094
S/DEPTH# .6	=14.802	=14.373	=11.133	=5.575		6.925	=19.3%
S/DEPTH# .5	11.6%	10.7%	2.6%	=27.3%	127.9%	5.427	10.855
S/DEPTH# .4	=12.888	=12.341	=9.714	=5.176	1.399	24.1%	=35.4%
S/DEPTH# .3	10.2%	9.4%	2.2%	=22.4%	164.4%	4.220	8.540
S/DEPTH# .2	=10.724	=10.445	=8.327	=4.648	.756	23.6%	=31.3%
S/DEPTH# .1	9.0%	8.3%	1.9%	=19.1%	*****	11.310	
	=8.903	=8.681	=6.932	=4.042	.341	16.4%	
	8.0%	7.3%	1.5%	=16.7%	*****	23.833	6.938
	=7.613	=7.040	=5.716	=3.394	.090	15.0%	=29.4%
	7.1%	6.5%	1.1%	=15.0%	*****	2.412	5.432
	=5.634	=5.503	=4.426	=2.724	.043	13.9%	=26.0%
	4.1%	3.9%	.9%	=13.8%	*****	1.712	8.004
	=4.146	=4.051	=3.772	=2.005	.095	22.4%	=25.1%
	5.9%	5.4%	.7%	=12.9%	*****	1.097	=24.0%
	=2.726	=2.665	=2.195	=1.363	.091	22.1%	1.108
	5.3%	5.0%	.5%	=12.3%	*****	.535	=23.5%
	=1.352	=1.321	=1.031	=1.681	.054	*****	*****
	5.1%	4.8%	.4%	*****	*****	.000	*****
	.000	.000	.000	.000	.000	.000	.000

TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD... DEFINED IN EQUATION (25)

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TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA =	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.593	.527	.453	.270	.038	-.152	-.345	-.407
	15.7%	10.8%	4.5%	-18.9%	-236.9%	43.1%	-10.9%	-22.9%
SURFACE	3.679	6.995	9.696	12.959	13.607	11.767	6.360	.000
S/DEPTH=1.1	22.5%	20.3%	17.0%	8.3%	-3.5%	-13.6%	-24.1%	*****
	.000	6.233	9.008					
S/DEPTH=1.0	17.9%	17.0%	15.5%					
	.000	5.206	7.540	11.213	13.348			
S/DEPTH=.9	2.658	15.4%	14.1%	9.7%	1.1%	10.870		
	.000	4.335	6.292	9.015	11.334	9.2%		
S/DEPTH=.8	2.211	14.1%	12.9%	8.9%	1.1%	9.276		
	.000	3.592	5.223	7.858	9.555	8.1%	5.585	.000
S/DEPTH=.7	1.830	12.9%	11.6%	8.1%	1.1%	7.820	4.781	.000
	.000	2.952	4.299	6.500	7.972	7.2%	-20.9%	*****
S/DEPTH=.6	1.502	1.9%	10.9%	7.5%	1.1%	6.485	4.015	.000
	.000	2.396	3.493	5.304	6.554	-6.4%	-18.8%	*****
S/DEPTH=.5	1.218	11.6%	10.1%	7.0%	1.2%	5.252	3.286	.000
	.000	1.905	2.781	4.238	5.270	-5.6%	-11.1%	*****
S/DEPTH=.4	.968	10.4%	9.5%	6.8%	1.2%	4.103	2.588	.000
	.000	1.466	2.143	3.275	4.093	-5.3%	-15.8%	*****
S/DEPTH=.3	.745	9.8%	9.0%	6.3%	1.2%	3.020	1.917	.000
	.000	1.067	1.560	2.390	2.999	-4.9%	-14.8%	*****
S/DEPTH=.2	.541	9.4%	8.6%	6.1%	1.3%	1.986	1.266	.000
	.000	.696	1.018	1.563	1.966	-4.6%	-14.1%	*****
S/DEPTH=.1	.353	9.1%	8.3%	5.9%	1.3%	.985	.630	.000
	.000	.343	.503	.772	.973	-4.4%	*****	*****
S/DEPTH=.0	.174	*****	*****	5.8%	1.3%	.000	.000	.000
	.000	.000	.000	.000	.000	*****	*****	*****

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TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.593	.576	.527	.453	.270	.038	.0152	.0345	.0407
	15.7%	14.5%	10.8%	4.5%	18.9%	236.9%	43.1%	10.9%	22.9%
SURFACE	6.988	6.583	5.511	4.112	1.575	.110	.150	.1138	.1625
	14.8%	13.0%	7.7%	.7%	27.5%	*****	*****	10.0%	14.0%
S/DEPTH=1.1	5.072	4.880	4.336	3.330					
	4.3%	3.5%	1.1%	3.1%					
S/DEPTH=1.0	3.473	3.344	2.981	2.440	1.173	.107			
	3.4%	2.7%	.6%	3.2%	18.2%	*****			
S/DEPTH= .9	2.364	2.279	2.037	1.675	.819	.081	.119		
	2.7%	2.1%	.2%	3.0%	16.0%	*****	*****		
S/DEPTH= .8	1.594	1.538	1.378	1.138	.565	.060	.076	.0807	.1250
	2.2%	1.7%	.0%	2.6%	14.0%	*****	*****	13.4%	24.8%
S/DEPTH= .7	1.059	1.022	.918	.760	.383	.043	.048	.157%	.856
	1.9%	1.4%	.0%	2.3%	12.3%	*****	*****	11.5%	21.5%
S/DEPTH= .6	.687	.663	.596	.496	.252	.030	.030	.360	.569
	1.7%	1.2%	.0%	2.2%	*****	*****	*****	10.2%	18.7%
S/DEPTH= .5	.429	.414	.373	.311	.159	.020	.018	.227	.363
	1.6%	1.2%	.1%	*****	*****	*****	*****	*****	16.4%
S/DEPTH= .4	.251	.243	.219	.183	.094	.012	.010	.135	.216
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .3	.132	.128	.115	.096	.050	.006	.005	.071	.115
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .2	.056	.054	.049	.041	.021	.003	.002	.030	.049
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .1	.014	.013	.012	.010	.005	.001	.001	.007	.012
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD....DEFINED IN EQUATION (28)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.593	.576	.527	.453	.270	.038	.0152	.0345	.0407
	15.7%	14.5%	10.8%	4.5%	18.9%	236.9%	43.1%	10.9%	22.9%
SURFACE	.000	2.691	5.018	6.753	8.352	7.879	6.183	2.998	.000
S/DEPTH=1.1	*****	27.3%	24.4%	20.0%	8.3%	7.0%	16.9%	28.0%	*****
	.000	2.129	4.155	5.982					
S/DEPTH=1.0	*****	20.5%	19.5%	17.8%					
	.000	1.573	3.075	4.459	6.531	7.618			
S/DEPTH=.9	*****	18.6%	17.7%	16.1%	11.1%	1.1%			
	.000	1.148	2.247	3.251	4.820	5.703	5.353		
S/DEPTH=.8	*****	16.8%	16.0%	14.6%	10.0%	1.1%			
	.000	.824	1.615	2.341	3.495	4.189	3.096		
S/DEPTH=.7	*****	15.2%	14.5%	13.2%	9.1%	1.0%			
	.000	.578	1.134	1.648	2.475	3.001	2.903	1.739	.000
S/DEPTH=.6	*****	13.8%	13.2%	12.0%	8.5%	1.1%			
	.000	.393	.771	1.123	1.696	2.078	2.035	1.241	.000
S/DEPTH=.5	*****	.255	12.0%	11.0%	7.6%	1.1%			
	.000	.255	.501	.731	1.109	1.370	1.356	.839	.000
S/DEPTH=.4	*****	.154	11.0%	10.1%	7.0%	1.2%			
	.000	.154	.303	.443	.675	.840	.838	.525	.000
S/DEPTH=.3	*****	.083	*****	9.4%	6.6%	1.2%			
	.000	.083	.163	.238	.365	.457	.458	.290	.000
S/DEPTH=.2	*****	.036	*****	*****	*****	1.3%			
	.000	.036	.070	.103	.157	.198	.200	.127	.000
S/DEPTH=.1	*****	.009	*****	*****	*****	*****			
	.000	.009	.017	.025	.039	.049	.049	.032	.000
S/DEPTH=.0	*****	.000	*****	*****	*****	*****			
	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 7-B

TABLE 1-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	15.7%	5.93	5.76	5.27	4.53	2.70	.038	.152	.407
		10.8%	10.8%	4.5%	16.9%	23.6%	43.1%	10.9%	22.9%
SURFACE	1.186	1.151	1.053	.907	.541	.077	.305	.691	.814
S/DEPTH=1.1	11.1%	10.2%	7.5%	3.1%	11.6%	130.6%	21.1%	5.0%	9.8%
S/DEPTH=1.0	7.6%	7.1%	5.4%	2.5%	.80	.080	.274	.619	.755
S/DEPTH=.9	6.8%	6.4%	4.9%	2.4%	.62%	121.9%	.224	.50%	11.9%
S/DEPTH=.8	6.2%	5.8%	4.5%	2.4%	.65%	76.0%	24.2%	.553	.683
S/DEPTH=.7	5.6%	5.1%	4.2%	2.3%	.51%	52.7%	24.1%	.33%	.49%
S/DEPTH=.6	5.2%	4.9%	4.0%	2.4%	.39%	38.8%	24.1%	.18%	.32%
S/DEPTH=.5	4.9%	4.6%	3.8%	2.4%	.29%	29.6%	24.2%	.09%	.24%
S/DEPTH=.4	4.6%	4.4%	3.7%	2.5%	.20%	23.3%	24.3%	.05%	.19%
S/DEPTH=.3	4.5%	4.3%	3.7%	2.6%	.13%	18.4%	24.5%	.03%	.12%
S/DEPTH=.2	4.4%	4.2%	3.7%	2.7%	.07%	15.8%	24.8%	.01%	.09%
S/DEPTH=.1	4.3%	4.1%	3.7%	2.8%	.03%	13.7%	25.0%	.00%	.07%
S/DEPTH=.0	4.3%	4.1%	3.7%	2.9%	.00%	12.1%	25.3%	.00%	.06%

CASE 7-B

TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA#	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	160.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.031	.057	.073	.072	.030	.010	.042	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.027	.025	.017	.006	.020	.041	.033	.020	.053
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

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TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.931 (4.5X)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.074 (35.4X)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.092 (7.2X)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.066 (6.4X)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.082 (3.5X)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.706 (2.7X)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.980 (2.8X)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.858 (.3X)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.176 (15.2X)

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TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.044026	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.030558	STREAM FUNCTION	.000017
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.077744	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.053135	STREAM FUNCTION	.000046
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.303566	STREAM FUNCTION	.315574
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.182946	STREAM FUNCTION	.213470

CASE 7=C

7TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS
 L0 = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $L0 = (G/6.28318) * T^2$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/L0 = .093785 DPT/L0 = .19999
 H/DPT = .468925
 L/L0 = .981055 PSI/(G*H*T) = -.010950

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.369772*01 X(2)/(H*T*G) = -.111087*02
 X(3)/(H*T*G) = -.220372*04 X(4)/(H*T*G) = -.591014*06
 X(5)/(H*T*G) = -.517059*07 X(6)/(H*T*G) = -.357964*08
 X(7)/(H*T*G) = -.424772*09

CASE 7=C

TABLE 1=DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)									
THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.653	.616	.528	.420	.207	.010	.165	.305	.347
	23.4%	20.1%	11.0%	3.1%	55.6%	*****	47.3%	25.4%	44.0%
SURFACE	5.653	5.313	4.512	3.578	1.847	.208	.886	1.812	2.072
S/DEPTH=1.3	15.3%	11.7%	2.1%	51.2%	49.2%	*****	34.2%	20.2%	28.6%
S/DEPTH=1.2	4.764	4.619	4.209						
S/DEPTH=1.1	4.0%	3.977	3.652	10.2%	3.155				
S/DEPTH=1.0	1.9%	.6%	3.3%	2.782					
S/DEPTH=.9	3.542	3.451	3.188	10.0%	1.682	.252	.852		
S/DEPTH=.8	3.093	3.019	2.803	2.466	34.3%	36.3%	37.22	1.719	2.014
S/DEPTH=.7	2.726	2.664	2.484	9.7%	29.9%	.282	33.2%	23.7%	32.6%
S/DEPTH=.6	1.9%	2.6%	2.220	9.3%	26.1%	*****	618	1.573	1.870
S/DEPTH=.5	2.423	2.373	2.005	1.979	1.301	.299	30.2%	21.0%	32.9%
S/DEPTH=.4	2.182	2.137	1.796	8.7%	22.8%	.307	27.3%	18.5%	28.6%
S/DEPTH=.3	2.6%	3.4%	5.1%	8.1%	19.9%	.311	24.71	1.347	1.639
S/DEPTH=.2	1.987	1.948	1.832	7.5%	17.4%	.311	24.6%	16.3%	24.8%
S/DEPTH=.1	3.0%	3.4%	4.9%	1.532	1.054	.311	422	1.265	1.553
	1.835	1.800	1.697	6.9%	15.2%	.309	22.2%	14.4%	21.1%
	3.0%	3.4%	4.7%	1.443	1.003	.309	385	1.203	1.487
	1.721	1.689	1.595	6.3%	13.5%	.308	20.2%	12.8%	19.2%
	2.9%	3.3%	4.4%	5.8%	9.7%	.308	360	1.158	1.439
	1.642	1.612	1.524	1.382	42.1%	.306	18.6%	11.7%	17.3%
	2.8%	3.2%	4.1%	5.8%	12.2%	.306	346	1.132	1.411
	1.596	1.567	1.482	1.345	.946	.306	17.7%	11.0%	16.2%
	2.8%	3.1%	4.0%	5.8%	11.4%	.306	341	1.123	1.401
	1.580	1.552	1.468	1.333	.939	.306	17.3%	10.7%	15.9%
	2.7%	3.0%	3.9%	5.4%	11.2%				

CASE 7=C

TABLE I=DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA ETA/HEIGHT	0 23.4%	10.0 653	20.0 528	30.0 420	50.0 207	75.0 1010	100.0 47.3%	130.0 25.305	160.0 44.0%
SURFACE	.000 *****	1.209 35.6%	2.098 28.1%	2.628 18.2%	2.944 3.2%	2.607 28.0%	1.968 47.2%	.912 64.0%	.000 *****
S/DEPTH=1.3	.000 *****								
S/DEPTH=1.2	.000 *****	.999	1.904						
S/DEPTH=1.1	.000 *****	25.7%	23.2%	2.182					
S/DEPTH=1.0	.000 *****	.814	1.539	15.9%					
S/DEPTH=1.0	.000 *****	21.7%	19.5%	1.805	2.485				
S/DEPTH= .9	.000 *****	.666	1.281	13.0%	3.2%	2.238	1.904		
S/DEPTH= .8	.000 *****	18.2%	16.2%	1.492	2.080	15.2%	18.0%	.848	.000
S/DEPTH= .7	.000 *****	15.2%	13.4%	1.054	1.752	15.0%	16.3%	70.7%	.000
S/DEPTH= .6	.000 *****	.447	.866	1.230	1.430	14.7%	15.6%	736	.000
S/DEPTH= .5	.000 *****	12.6%	11.0%	1.008	.8%	14.5%	13.1%	64.3%	.000
S/DEPTH= .4	.000 *****	10.4%	9.0%	.816	1.166	14.3%	11.2%	59.1%	.000
S/DEPTH= .3	.000 *****	.294	.571	5.1%	1.7%	14.0%	9.46	517	.000
S/DEPTH= .2	.000 *****	8.6%	7.3%	.453	.931	13.8%	29.6%	55.0%	.000
S/DEPTH= .1	.000 *****	.233	.453	3.9%	2.4%	14.1%	7.42	51.7%	.000
S/DEPTH= .0	.000 *****	7.1%	5.9%	.98	.720	14.1%	28.4%	51.7%	.000
S/DEPTH= .0	.000 *****	.179	.348	2.9%	3.0%	14.1%	5.48	49.3%	.000
S/DEPTH= .0	.000 *****	5.9%	4.8%	.63	.525	14.0%	27.4%	49.3%	.000
S/DEPTH= .0	.000 *****	.130	.253	2.2%	3.4%	13.9%	361	203	.000
S/DEPTH= .0	.000 *****	.084	.165	.336	.343	13.9%	26.8%	47.6%	.000
S/DEPTH= .0	.000 *****	.042	.081	1.1%	.170	13.8%	179	101	.000
S/DEPTH= .0	.000 *****	.000	.000	.000	.000	13.8%	26.4%	47.6%	.000
S/DEPTH= .0	.000 *****	.000	.000	.000	.000	13.8%	26.4%	47.6%	.000

CASE 7=C

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA ETA/HEIGHT	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.653	.616	.528	.420	.207	.010	.165	.305	.347
	23.4%	20.1%	11.0%	3.1%	55.6%	*****	47.3%	25.1%	44.0%
SURFACE	.000	11.228	18.598	22.164	23.029	19.010	13.470	5.745	.000
	*****	56.1%	48.7%	38.3%	14.1%	19.5%	56.5%	114.8%	*****
S/DEPTH1.3	.000								

S/DEPTH1.2	.000	9.057	16.745						
	*****	48.2%	44.6%						
S/DEPTH1.1	.000	7.220	13.538	18.371					
	*****	43.5%	40.4%	35.5%					
S/DEPTH1.0	.000	5.837	11.059	15.227	19.800				
	*****	39.1%	36.4%	32.1%	18.4%				
S/DEPTH.9	.000	4.781	9.131	12.720	17.006	17.109	13.296		
	*****	35.0%	32.6%	28.8%	16.6%	8.3%	47.6%		
S/DEPTH.8	.000	3.967	7.625	10.724	14.695	15.357	12.522		
	*****	31.2%	29.1%	25.7%	14.9%	6.9%	39.6%		
S/DEPTH.7	.000	3.537	6.448	9.142	12.805	13.853	11.775		
	*****	27.7%	25.9%	22.9%	13.3%	5.7%	33.1%		
S/DEPTH.6	.000	2.849	5.529	7.895	11.276	12.585	11.090		
	*****	24.6%	23.0%	20.3%	11.9%	4.7%	27.8%		
S/DEPTH.5	.000	2.473	4.820	6.924	10.060	11.541	10.488		
	*****	21.8%	20.2%	18.1%	10.7%	3.8%	23.6%		
S/DEPTH.4	.000	2.190	4.281	6.112	9.116	10.708	9.984		
	*****	19.5%	18.2%	16.2%	9.7%	3.0%	20.1%		
S/DEPTH.3	.000	1.983	3.887	5.637	8.413	10.073	9.586		
	*****	17.6%	16.3%	14.7%	8.9%	2.4%	17.5%		
S/DEPTH.2	.000	1.842	3.517	5.253	7.927	9.628	9.299		
	*****	16.2%	15.2%	13.6%	8.3%	1.9%	15.6%		
S/DEPTH.1	.000	1.760	3.461	5.045	7.642	9.363	9.125		
	*****	15.3%	14.4%	12.9%	8.0%	1.6%	14.5%		
S/DEPTH.0	.000	1.733	3.409	4.974	7.548	9.276	9.068		
	*****	15.0%	14.1%	12.7%	7.9%	1.5%	14.1%		

CASE 7=C

TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD....DEFINED IN EQUATION (24)

THETA = ETA/HEIGHT=	0 .653 23.4K	10.0 .616 20.1K	20.0 .528 11.0K	30.0 .420 3.1K	50.0 .207 -55.6K	75.0 .010 *****	100.0 -1.15 47.3K	130.0 -1.65 -23.4K	160.0 -2.347 -44.0K
SURFACE	-21.189	-19.098	-14.296	-8.919	-.388	7.795	10.681	10.330	9.460
8/DEPTH=1.3	33.9K	28.9K	14.0K	-15.5K	*****	60.0K	8.7K	51.3K	-80.5K
8/DEPTH=1.2	33.8K	18.442	14.424	6.5K	-1.207	5.634	10.142	9.441	9.005
8/DEPTH=1.1	30.2K	26.8K	14.8K	-9.584	34.1K	79.0K	16.8K	58.8K	-89.6K
8/DEPTH=1.0	26.5K	23.8K	14.6K	-6.5K	-2.574	3.964	8.056	58.8K	-89.6K
8/DEPTH=.9	23.0K	20.8K	13.3K	-2.8K	-2.673	2.752	6.361	52.5K	-91.6K
8/DEPTH=.8	19.016	17.9K	11.5K	-8.859	-2.119	1.881	4.975	47.5K	6.594
8/DEPTH=.7	16.094	15.2K	9.8K	-1.5K	-2.574	11.5K	19.8K	3.074	3.196
8/DEPTH=.6	14.4K	12.9K	8.1K	-6.007	55.1K	126.7K	2.04K	43.5K	75.2K
8/DEPTH=.5	12.5K	10.9K	6.8K	-4.970	-2.7K	1.281	3.828	4.179	4.299
8/DEPTH=.4	10.5K	9.2K	5.3K	-3.843	-1.902	.823	2.864	40.5K	69.6K
8/DEPTH=.3	9.0K	7.9K	4.2K	-2.8K	-1.8K	.516	2.037	3.074	3.196
8/DEPTH=.2	7.5K	6.9K	3.4K	-3.2K	-38.4K	*****	2.1K	38.2K	65.5K
8/DEPTH=.1	6.1K	6.1K	2.8K	-3.4K	*****	*****	2.1K	30.6K	62.7K
8/DEPTH=.0	5.7K	5.7K	2.5K	-3.6K	*****	*****	*****	1.001	1.054
8/DEPTH=.0	5.000	5.000	2.000	*****	*****	*****	*****	*****	*****
8/DEPTH=.0	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 7=C

TABLE V=DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA #	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT#	.653	.616	.528	.420	.207	.010	.305	.347
	23.4%	20.1%	11.0%	-3.1%	55.6%	47.3%	25.4%	44.0%
SURFACE	11.311	10.232	7.835	5.339	1.759	.087	.1569	.2,242
S/DEPTH#1.3	18.0%	12.8%	.9%	20.8%	77.3%	*****	26.9%	34.6%
S/DEPTH#1.2	16.6%	8.041	6.929					
S/DEPTH#1.1	11.119	2.8%	8.6%	4.232				
S/DEPTH#1.0	5.039	4.0%	5.388	18.3%				
S/DEPTH# .9	3.942	4.824	4.221	3.333	1.456			
S/DEPTH# .8	3.098	5.6%	3.826	17.4%	46.0%	.239		
S/DEPTH# .7	2.436	6.3%	10.0%	2.666	1.194	*****	1.412	2.087
S/DEPTH# .6	1.907	2.975	2.629	16.5%	43.3%	.075	36.0%	44.9%
S/DEPTH# .5	1.474	6.7%	9.9%	15.6%	38.6%	*****	1.710	50.9%
S/DEPTH# .4	1.110	2.342	2.078	1.687	.791	.066	32.8%	46.1%
S/DEPTH# .3	.794	6.9%	1.632	14.7%	34.7%	*****	29.8%	41.098
S/DEPTH# .2	.513	6.1%	9.4%	13.9%	31.6%	.057	27.6%	42.2%
S/DEPTH# .1	.251	1.419	1.265	1.036	.500	*****	.258	*****
S/DEPTH# .0	.000	6.8%	9.1%	13.2%	*****	.048	*****	*****
		1.069	.955	.784	.382	.038	.348	.044
		6.0%	8.8%	12.5%	*****	*****	*****	39.4%
		.766	.684	.563	.277	.028	.397	.613
		.65%	8.5%	*****	*****	*****	*****	37.2%
		.94	.442	.364	.180	.019	.258	.000
		*****	*****	*****	*****	*****	*****	*****
		.242	.217	.179	.089	.009	.127	.197
		*****	*****	*****	*****	*****	*****	*****
		.000	.000	.000	.000	.000	.000	.000
		*****	*****	*****	*****	*****	*****	*****

CASE 7=C

TABLE VI=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA =	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.653	.616	.528	.420	.207	.010	.335	.347
	23.4%	20.1%	11.0%	3.1%	55.6%	*****	25.4%	44.0%
SURFACE	.000	5.244	9.159	11.573	13.306	12.332	9.803	.000
S/DEPTH#1.3	*****	41.0%	34.2%	25.3%	5.8%	16.6%	34.4%	51.9%
S/DEPTH#1.2	*****	4.346	8.317					
S/DEPTH#1.1	*****	32.2%	29.9%	23.7%	9.614			
S/DEPTH#1.0	*****	29.1%	27.0%	23.7%	23.7%			
	*****	26.8%	5.585	7.940	11.236			
S/DEPTH# .9	*****	26.4%	24.6%	21.6%	12.5%			
	*****	2.358	4.580	6.547	9.400	10.614	9.499	
S/DEPTH# .8	*****	24.0%	22.4%	19.7%	11.5%	4.4%	26.0%	4.531
	*****	21.9%	3.745	5.379	7.819	8.993	8.208	57.4%
S/DEPTH# .7	*****	20.2%	20.5%	18.1%	10.6%	3.8%	23.2%	3.948
	*****	1.558	3.044	4.389	6.447	7.535	6.993	.000
S/DEPTH# .6	*****	1.250	18.9%	16.7%	9.9%	3.2%	20.8%	51.6%
	*****	18.7%	2.447	3.539	5.246	6.215	5.851	3.366
S/DEPTH# .5	*****	17.5%	1.931	15.6%	9.3%	2.8%	19.0%	46.9%
	*****	17.5%	16.4%	14.6%	4.181	5.010	4.773	2.788
S/DEPTH# .4	*****	16.6%	1.477	12.9%	3.225	2.4%	17.5%	43.2%
	*****	.954	15.6%	13.9%	3.147	3.900	3.750	2.217
S/DEPTH# .3	*****	*****	1.070	1.558	8.4%	2.1%	16.3%	40.3%
	*****	354	14.9%	13.3%	2.350	2.862	2.772	1.855
S/DEPTH# .2	*****	*****	.696	1.014	8.1%	1.9%	15.3%	36.2%
	*****	*****	14.4%	12.9%	1.535	1.879	1.829	1.099
S/DEPTH# .1	*****	*****	.174	5.00	8.0%	1.7%	14.7%	36.7%
	*****	*****	*****	*****	7.758	.930	.909	5.48
S/DEPTH# .0	*****	*****	*****	*****	7.6%	1.8%	14.3%	*****
	*****	*****	*****	*****	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****

CASE 7-C

TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA ETA/HEIGHT	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
	.653	.616	.528	.420	.207	.010	.165	.305	.347
	23.4%	20.1%	11.0%	3.1%	55.6%	*****	47.3%	25.4%	44.0%
SURFACE	10.622	9.399	6.807	4.304	1.201	.041	.158	.797	1.069
	25.6%	19.5%	2.6%	23.0%	100.9%	*****	*****	24.4%	27.1%
S/DEPTH=1.03	10.372								
	23.8%								
S/DEPTH=1.2	7.023	6.668	5.697						
	.6%	1.5%	8.2%						
S/DEPTH=1.1	4.772	4.546	3.922	3.042					
	1.7%	3.6%	9.1%	19.7%					
S/DEPTH=1.0	3.243	3.098	2.694	2.117	.883				
	3.5%	5.1%	10.0%	18.9%	57.1%				
S/DEPTH= .9	2.198	2.104	1.842	1.463	.634	.036	.142	.650	.942
	4.7%	6.1%	10.3%	18.0%	50.1%	*****	*****	40.7%	44.3%
S/DEPTH= .8	1.479	1.418	1.248	1.000	.447	.030	.090	.447	.659
	5.5%	6.7%	10.5%	16.9%	*****	*****	*****	*****	57.7%
S/DEPTH= .7	.981	.943	.833	.673	.309	.023	.056	.299	.447
	5.9%	7.0%	10.2%	15.9%	*****	*****	*****	*****	*****
S/DEPTH= .6	.637	.612	.543	.441	.207	.017	.035	.191	.289
	6.1%	7.0%	9.9%	*****	*****	*****	*****	*****	*****
S/DEPTH= .5	.398	.383	.340	.278	.133	.012	.021	.114	.175
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .4	.233	.225	.200	.164	.079	.008	.012	.061	.094
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .3	.123	.118	.106	.087	.042	.004	.006	.026	.040
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .2	.052	.050	.045	.037	.018	.002	.002	.006	.010
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .1	.013	.012	.011	.009	.004	.000	.001	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 7=C

TABLE VII=DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA ETA/HEIGHT	0 23.4%	10.0 6.53	20.0 11.0%	30.0 3.1%	40.0 55.6%	50.0 207	60.0 75.0	70.0 100.0	80.0 130.0	90.0 180.0
	.653	.616	.528	.420	.207	.010	.0165	.473%	.25.4%	.347
	.23.4%	.20.1%	.11.0%	.3.1%	.55.6%	.010	.165	.473%	.25.4%	.347
	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=1.3	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=1.2	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=1.1	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=1.0	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.9	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.8	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.7	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.6	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.5	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.4	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.3	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.2	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.1	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 7=C

TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD.....DEFINED IN EQUATION (29)

THETA ETA/HEIGHT	0 .653 23.4%	10.0 .616 20.1%	20.0 .528 11.0%	30.0 .420 3.1%	50.0 .207 -55.0%	75.0 .010 *****	100.0 .165 47.3%	130.0 .305 -25.4%	160.0 .347 -44.0%
SURFACE	1.305	1.233	1.056	.840	.413	-.021	-.329	-.611	-.695
S/DEPTH=1.3	19.6%	16.7%	9.0%	2.0%	-36.0%	*****	21.4%	12.1%	18.9%
S/DEPTH=1.2	19.1%	1.126	1.013	.762					
S/DEPTH=1.1	12.6%	11.2%	6.7%	.922					
S/DEPTH=1.0	10.4%	1.013	.922	.762					
S/DEPTH=.9	10.8%	9.6%	5.9%	.9%					
S/DEPTH=.8	9.36	.910	.836	.721					
S/DEPTH=.7	9.2%	8.1%	5.0%	.6%					
S/DEPTH=.6	7.8%	.69%	.758	.663					
S/DEPTH=.5	6.6%	5.9%	3.6%	.561					
S/DEPTH=.4	5.7%	5.0%	3.1%	.520					
S/DEPTH=.3	4.9%	4.4%	2.7%	.485					
S/DEPTH=.2	4.4%	3.9%	2.5%	.456					
S/DEPTH=.1	4.0%	3.6%	2.3%	.434					
S/DEPTH=.0	3.8%	3.4%	2.2%	.419					
S/DEPTH=1.3	19.6%	16.7%	9.0%	2.0%					
S/DEPTH=1.2	19.1%	1.126	1.013	.762					
S/DEPTH=1.1	12.6%	11.2%	6.7%	.922					
S/DEPTH=1.0	10.4%	1.013	.922	.762					
S/DEPTH=.9	10.8%	9.6%	5.9%	.9%					
S/DEPTH=.8	9.36	.910	.836	.721					
S/DEPTH=.7	9.2%	8.1%	5.0%	.6%					
S/DEPTH=.6	7.8%	.69%	.758	.663					
S/DEPTH=.5	6.6%	5.9%	3.6%	.561					
S/DEPTH=.4	5.7%	5.0%	3.1%	.520					
S/DEPTH=.3	4.9%	4.4%	2.7%	.485					
S/DEPTH=.2	4.4%	3.9%	2.5%	.456					
S/DEPTH=.1	4.0%	3.6%	2.3%	.434					
S/DEPTH=.0	3.8%	3.4%	2.2%	.419					

CASE 7=C

TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.105	.185	.225	.198	.073	.039	.084	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.025	.021	.011	.005	.039	.062	.043	.041	.087
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 7=C

TABLE XI OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.981 (9.4%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.426 (17.3%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.461 (21.5%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.887 (19.4%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.665 (13.4%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.749 (5.1%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.917 (10.6%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.838 (4.9%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.174 (27.7%)

CASE 7=C

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

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* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR
      DEFINED IN EQUATION (46)
      LINEAR          .119668          STREAM FUNCTION          .000000

(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR
      DEFINED IN EQUATION (47)
      LINEAR          .047489          STREAM FUNCTION          .000066

(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR
      DEFINED IN EQUATION (46)
      LINEAR          .229930          STREAM FUNCTION          .000000

(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR
      DEFINED IN EQUATION (47)
      LINEAR          .087129          STREAM FUNCTION          .000178

(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER
      DEFINED IN EQUATION (48)
      LINEAR          .505160          STREAM FUNCTION          .540404

(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER
      DEFINED IN EQUATION (49)
      LINEAR          .254826          STREAM FUNCTION          .316274

      ITERATIONS ON ETA FAILED TO CONVERGE IN 40 ITER

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CASE 7=D

9TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/g \cdot 28310) \cdot T^{**2}$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .12492 DPT/LO = .19999

H/DPT = .622465

L/LO = 1.035156 PSI/(G*H*T) = -.010896

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.332090E01 X(2)/(H*T*G) = -.145664E02

X(3)/(H*T*G) = -.636587E04 X(4)/(H*T*G) = -.351129E05

X(5)/(H*T*G) = -.400131E06 X(6)/(H*T*G) = -.323351E07

X(7)/(H*T*G) = -.607129E08 X(8)/(H*T*G) = -.231839E08

X(9)/(H*T*G) = -.564928E09

CASE 7=D

TABLE 1=DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.724	.580	.443	.326	.137	.033	.0147	.0247	.276
	31.0%	15.1%	6.1%	32.7%	134.7%	*****	41.0%	55.3%	81.2%
SURFACE	7.622	5.536	3.976	2.884	1.276	.004	.789	1.435	1.607
S/DEPTH=1.4	30.4%	6.2%	22.3%	50.7%	130.5%	*****	27.3%	42.9%	52.8%
S/DEPTH=1.3	5.323	4.946	3.586	2.873					
S/DEPTH=1.2	1.8%	4.156	19.9%	37.9%					
S/DEPTH=1.1	4.3%	8.4%	3.125	2.564					
S/DEPTH=1.0	3.692	3.536	20.7%	35.8%					
S/DEPTH=1.0	8.7%	11.8%	22.7%	2.888	1.226				
S/DEPTH= .9	3.155	3.042	21.5%	33.7%	85.3%		.778		
S/DEPTH= .8	12.0%	14.4%	22.1%	32.4%	1.158	*****	30.3%	1.372	100.0%
S/DEPTH= .7	14.3%	16.2%	22.1%	32.4%	73.4%	*****	27.4%	48.4%	100.0%
S/DEPTH= .6	2.395	2.327	21.3%	30.8%	1.841	*****	116	1.270	1.480
S/DEPTH= .5	17.7%	17.5%	22.3%	30.8%	63.8%	*****	155	40.9%	65.9%
S/DEPTH= .4	1.606	1.571	1.911	1.667	1.023	*****	24.6%	1.183	1.396
S/DEPTH= .3	17.7%	18.5%	22.8%	29.1%	56.2%	*****	21.8%	45.3%	60.7%
S/DEPTH= .2	1.507	1.476	1.385	1.240	.963	*****	21.8%	41.10	1.324
S/DEPTH= .1	17.6%	18.2%	20.2%	23.7%	49.8%	*****	19.2%	41.2%	54.5%
S/DEPTH= .0	1.439	1.410	1.326	1.191	.910	*****	1.395	1.051	1.266
S/DEPTH= .0	17.4%	17.9%	19.7%	22.8%	44.5%	*****	16.8%	37.8%	49.3%
S/DEPTH= .0	1.399	1.371	1.291	1.162	.867	*****	3361	1.005	1.221
S/DEPTH= .0	17.2%	17.8%	19.4%	22.2%	40.2%	*****	3361	35.0%	45.1%
S/DEPTH= .0	1.386	1.358	1.279	1.152	.808	*****	3361	35.0%	45.1%
S/DEPTH= .0	17.2%	17.7%	19.3%	22.0%	44.4%	*****	3361	35.0%	45.1%
S/DEPTH= .0	1.366	1.338	1.259	1.132	.808	*****	3361	35.0%	45.1%
S/DEPTH= .0	17.2%	17.7%	19.3%	22.0%	44.4%	*****	3361	35.0%	45.1%

CASE 7=D

TABLE II-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD....DEFINED IN EQUATION (22)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.724	.580	.443	.326	.137	.033	.147	.247	.276
	31.0%	15.1%	6.1%	32.7%	113.47%	*****	41.0%	55.13%	81.2%
SURFACE	.000	1.627	2.148	2.554	2.486	2.011	1.430	.632	.000
S/DEPTH=1.4	*****	52.3%	26.4%	7.0%	31.8%	71.1%	98.2%	114.1%	*****
S/DEPTH=1.3	*****	41.6%							
S/DEPTH=1.2	*****	1.478	1.954	2.537					
S/DEPTH=1.1	*****	32.2%	25.1%	15.7%	1.795	1.782	1.414	.599	.000
S/DEPTH=1.0	*****	24.5%	19.0%	11.2%	1.551	1.518	1.232	.126.0%	.000
S/DEPTH=.9	*****	16.0%	13.7%	7.0%	1.125	1.095	80.0%	.525	.000
S/DEPTH=.8	*****	12.7%	9.0%	3.2%	1.003	1.006	75.2%	.450	.000
S/DEPTH=.7	*****	8.2%	5.0%	1.1%	.811	.803	71.3%	.375	.000
S/DEPTH=.6	*****	4.5%	1.7%	.2%	.654	.689	68.1%	.113.5%	.000
S/DEPTH=.5	*****	1.4%	1.1%	.52%	.523	.589	65.6%	.107.8%	.000
S/DEPTH=.4	*****	.163	.342	.71%	.412	.492	61.7%	.103.4%	.000
S/DEPTH=.3	*****	.118	.228	.87%	.351	.432	58.9%	.100.4%	.000
S/DEPTH=.2	*****	.077	.148	.96%	.281	.333	56.2%	.100.0%	.000
S/DEPTH=.1	*****	.038	.073	1.04%	.205	.246	54.0%	.100.0%	.000
S/DEPTH=.0	*****	.000	.000	.000	.20.7%	.38.7%	51.6%	.100.0%	.000

CASE 7=D

TABLE III=DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	10.0	20.0	30.0	50.0	75.0	100.0	130.0	160.0
ETA/HEIGHT=	.724	.580	.443	.326	.137	.033	.147	.276
	31.0%	15.1%	6.1%	32.7%	134.7%	*****	41.0%	81.2%
SURFACE	.000	23.658	23.538	22.850	19.677	14.544	9.342	3.816
	*****	77.4%	55.9%	35.4%	6.1%	59.4%	123.1%	211.3%
S/DEPTH=1.4	.000							*****
S/DEPTH=1.3	.000	18.340						*****
	*****	71.1%						*****
S/DEPTH=1.2	.000	12.608	19.672	22.725				*****
	*****	63.6%	53.8%	41.2%				*****
S/DEPTH=1.1	.000	9.113	15.412	18.874				*****
	*****	56.3%	48.9%	38.5%				*****
S/DEPTH=1.0	.000	6.857	12.158	15.517	17.443			*****
	*****	49.6%	43.7%	34.9%	9.0%			*****
S/DEPTH= .9	.000	5.321	9.715	12.782	15.146	13.546	9.340	*****
	*****	43.4%	38.6%	31.1%	18.3%	35.7%	111.2%	*****
S/DEPTH= .8	.000	4.234	7.882	10.613	13.161	12.402	9.196	*****
	*****	37.8%	33.8%	27.3%	7.3%	31.2%	91.1%	*****
S/DEPTH= .7	.000	3.444	6.501	8.915	11.532	11.383	8.932	*****
	*****	32.8%	29.3%	23.7%	6.2%	27.4%	76.6%	*****
S/DEPTH= .6	.000	2.862	5.459	7.597	10.178	10.095	8.627	*****
	*****	28.3%	25.4%	20.5%	5.1%	24.2%	65.5%	*****
S/DEPTH= .5	.000	2.431	4.675	6.584	9.089	9.744	8.327	*****
	*****	24.5%	21.9%	17.6%	4.2%	21.5%	56.8%	*****
S/DEPTH= .4	.000	2.115	4.094	5.822	8.131	9.131	8.056	*****
	*****	21.3%	19.0%	15.3%	3.4%	19.3%	50.1%	*****
S/DEPTH= .3	.000	1.889	3.675	5.266	7.603	8.657	7.832	*****
	*****	18.7%	16.7%	13.4%	2.9%	17.5%	45.0%	*****
S/DEPTH= .2	.000	1.738	3.393	4.889	7.163	8.319	7.686	*****
	*****	16.8%	15.0%	12.0%	2.2%	16.2%	41.5%	*****
S/DEPTH= .1	.000	1.651	3.230	4.671	6.904	8.118	7.564	*****
	*****	15.6%	14.0%	11.2%	2.2%	15.4%	39.4%	*****
S/DEPTH= .0	.000	1.622	3.177	4.599	6.819	8.051	7.529	*****
	*****	15.3%	13.6%	10.9%	2.6%	15.2%	36.7%	*****

TABLE IV=DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

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TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

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TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.724	.560	.443	.326	.137	.033	.017	.0207	.0276
	31.0%	15.1%	6.1%	32.7%	134.7%	*****	41.0%	55.3%	81.2%
SURFACE	17.042	10.013	5.528	2.987	.669	.012	.0126	.0508	.0663
	39.0%	1.0%	55.3%	124.9%	*****	*****	*****	*****	*****
S/DEPTH#1.4	13.360								
	22.2%								
S/DEPTH#1.3	6.546	7.788							
	16.9%	24.4%	4.189	2.955					
S/DEPTH#1.2	5.614	5.205							
	24.3%	30.0%	47.1%	77.1%					
S/DEPTH#1.1	3.743	3.907	2.894	2.105					
	29.7%	34.2%	48.1%	73.0%					
S/DEPTH#1.0	2.515	2.373	1.993	1.486					
	33.4%	37.2%	48.7%	69.3%	.529				
S/DEPTH# .9	1.693	1.605	1.267	1.000	.394	.012	.0122		
	35.9%	39.0%	48.7%	66.0%	*****	*****	*****		
S/DEPTH# .8	1.134	1.080	.929	.718	.286	.011	.077	.0433	.0605
	37.5%	40.1%	48.2%	62.9	*****	*****	*****	*****	*****
S/DEPTH# .7	.782	.717	.622	.487	.203	.010	.049	.0303	.0430
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH# .6	.487	.466	.407	.322	.139	.008	.030	.0205	.0295
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH# .5	.305	.292	.256	.204	.090	.006	.018	.0132	.0194
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH# .4	.179	.172	.151	.121	.055	.004	.010	.0080	.0118
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH# .3	.094	.090	.080	.064	.030	.002	.005	.0043	.0064
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH# .2	.040	.038	.034	.027	.013	.001	.002	.0018	.0028
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH# .1	.010	.009	.008	.007	.003	.000	.001	.0005	.0007
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH# .0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE VII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.724	.580	.443	.326	.137	.033	.0147	.0247	.276
	31.0%	15.1%	6.1%	32.7%	134.7%	*****	41.0%	55.3%	81.2%
SURFACE	.000	7.536	8.946	8.967	7.552	5.422	3.570	1.495	.000
S/DEPTH#1.4	.000	63.8%	41.7%	19.1%	26.5%	70.4%	93.2%	88.8%	*****
S/DEPTH#1.3	.000	5.844							.000
S/DEPTH#1.2	.000	54.1%		8.681					.000
S/DEPTH#1.1	.000	3.936		31.9%					.000
S/DEPTH#1.0	.000	47.5%		6.488					.000
S/DEPTH# .9	.000	2.700		28.9%					.000
S/DEPTH# .8	.000	41.7%		36.5%					.000
S/DEPTH# .7	.000	1.868		3.473	5.903				.000
S/DEPTH# .6	.000	36.7%		32.4%	6.5%				.000
S/DEPTH# .5	.000	1.292		3.344	4.374				.000
S/DEPTH# .4	.000	32.3%		23.0%	26.3%				.000
S/DEPTH# .3	.000	1.691		2.351	3.271			1.346	.000
S/DEPTH# .2	.000	28.9%		25.4%	23.9%			109.6%	.000
S/DEPTH# .1	.000	.601		1.153	2.379			1.043	.000
S/DEPTH# .0	.000	25.2%		22.5%	21.8%			120.8%	.000
S/DEPTH# .9	.000	.396		1.765	1.668			.771	.000
S/DEPTH# .8	.000	.888		20.1%	20.0%			108.5%	.000
S/DEPTH# .7	.000	.251		18.0%	1.112			.537	.000
S/DEPTH# .6	.000	.149		.290	18.6%			98.9%	.000
S/DEPTH# .5	.000	.079		.154	17.4%			344	.000
S/DEPTH# .4	.000	.034		.066	17.4%			.193	.000
S/DEPTH# .3	.000	.008		.016	164			.086	.000
S/DEPTH# .2	.000	.000		.000	*****			*****	.000
S/DEPTH# .1	.000	.000		.000	*****			*****	.000
S/DEPTH# .0	.000	.000		.000	*****			*****	.000

CASE 7=0

TABLE IX=DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA ETA/HEIGHT=	0 724 31.0%	10.0 580 15.1%	20.0 443 6.1%	30.0 326 32.7%	50.0 137 134.7%	75.0 033 *****	100.0 147 41.0%	130.0 247 55.3%	180.0 276 81.2%
SURFACE	1.377	1.167	.904	.673	.282	.062	.296	.501	.564
S/DEPTH=1.4	26.7%	15.5%	1.5%	20.4%	82.2%	*****	11.6%	25.4%	32.6%
S/DEPTH=1.3	24.2%	11.18							
S/DEPTH=1.2	17.0%	12.1%	.868	.672					
S/DEPTH=1.1	12.4%	9.0%	.7%	16.9%					
S/DEPTH=1.0	8.3%	5.7%	.805	.646					
S/DEPTH=.9	4.7%	2.6%	1.738	.610	.300				
S/DEPTH=.8	1.6%	.1%	.674	.370	.308	.026	.292		
S/DEPTH=.7	.627	.611	.522	.462	.295	.035	.201	.480	.552
S/DEPTH=.6	.573	.560	.91%	.14.7%	.37.2%	.053	.168	.439	.515
S/DEPTH=.5	.529	.518	.485	.334	.287	.067	.143	.405	.482
S/DEPTH=.4	.494	.485	.456	.311	.280	.076	.123	.376	.455
S/DEPTH=.3	.468	.459	.434	.293	.273	.083	.109	.353	.432
S/DEPTH=.2	.440	.442	.418	.280	.268	.087	.099	.336	.415
S/DEPTH=.1	.439	.431	.409	.372	.265	.089	.093	.323	.403
S/DEPTH=.0	.435	.428	.406	.370	.264	.090	.091	.314	.393
	.8.6%	9.4%	11.4%	14.9%	28.6%	101.2%	83.3%	.9%	13.3%

CASE 7-D

TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION,... DEFINED IN EQ.(35)									
SURFACE	.000	.371	.587	.629	.443	.137	.066	.135	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION,... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION,... DEFINED IN EQ.(36)									
SURFACE	.0005	.001	.011	.028	.064	.080	.044	.069	.126
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION,... DEFINED IN EQ.(37)									
SURFACE	.036	.004	.009	.010	.004	.002	.001	.004	.006

CASE 7=D

TABLE XI=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	1.035 (14.1%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	320 (-56.0%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.365 (-65.6%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.686 (-61.1%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.548 (-49.9%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.799 (7.0%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.727 (-41.0%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.694 (-31.5%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.146 (37.7%)

CASE 7=D

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.300647	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.067613	STREAM FUNCTION	.006130
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.629274	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.125891	STREAM FUNCTION	.035687
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.743105	STREAM FUNCTION	.916645
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.308190	STREAM FUNCTION	.242414

CASE 8=a

2TH ORDER STREAM FUNCTION WAVE THEORY

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2$

DEFINITIONS

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
DPT = WATER DEPTH L = WAVE LENGTH
PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .04195 DPT/LO = .499998
H/DPT = .08390
L/LO = 1.013086 PSI/(G*H*T) = -.005178

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.714280+02 X(2)/(H*T*G) = -.622897+06

CASE 8=A

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA ETA/HEIGHT	0 .534 6.3%	10.0 .524 6.0%	20.0 .494 4.9%	30.0 .447 3.0%	50.0 .310 3.6%	75.0 .097 32.8%	100.0 .116 25.0%	130.0 .373 2.6%	180.0 .466 7.3%
SURFACE	3.575	3.511	3.322	3.021	2.156	.812	-.533	-.2.153	-.2.737
S/DEPTH=1.0	.5%	.6%	.9%	1.2%	2.2%	3.9%	5.3%	1.3%	-.9%
S/DEPTH=.9	3.111	3.063	2.921	2.690	1.990	.792	-.3%	-.1.3%	-.2.737
S/DEPTH=.8	2.283	2.248	2.144	1.975	1.462	.584	-.4%	-.1.743	-.2.270
S/DEPTH=.7	1.678	1.653	1.577	1.452	1.076	.430	-.5%	-.1.2%	-.1.4%
S/DEPTH=.6	1.238	1.219	1.163	1.071	.794	.318	-.7%	-.1.282	-.1.671
S/DEPTH=.5	.917	.903	.862	.794	.589	.236	-.1%	-.946	-.1.234
S/DEPTH=.4	.686	.676	.645	.594	.441	.177	-.3%	-.702	-.915
S/DEPTH=.3	.522	.514	.490	.452	.335	.135	-.4%	-.525	-.685
S/DEPTH=.2	.408	.402	.383	.353	.262	.105	-.9%	-.399	-.521
S/DEPTH=.1	.334	.329	.314	.289	.214	.086	1.6%	-.312	-.408
S/DEPTH=.0	.278	.274	.262	.241	.179	.072	2.1%	-.256	-.2.1%
	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	2.7%	-.224	-.2.6%
							3.0%	-.224	-.2.92
							3.0%	-.224	-.3.0%
							3.2%	-.224	-.3.2%

CASE 8=a

TABLE II-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.534	.524	.494	.447	.310	.097	.116	.373	.466
	6.3%	6.0%	4.9%	3.0%	3.6%	32.8%	28.0%	2.6%	7.3%
SURFACE	.000	.620	1.211	1.747	2.578	3.064	2.945	1.789	.000
8/DEPTH=1.0	*****	.12%	.4%	.8%	1.6%	2.4%	2.6%	1.8%	*****
8/DEPTH=.9	.000	.540	1.063	1.553	2.376	2.987			
8/DEPTH=.8	.000	.49%	1.0%	1.4%	2.1%	2.8%	2.23	1.446	.000
8/DEPTH=.7	.000	.46%	.77%	1.135	1.737	2.186	1.3%	1.7%	.000
8/DEPTH=.6	.000	.43%	.567	.829	1.269	1.597	1.025	1.058	.000
8/DEPTH=.5	.000	.41%	.3%	.4%	.5%	.6%	.8%	1.1%	.000
8/DEPTH=.4	.000	.40%	.0%	.0%	.1%	.2%	.3%	.5%	.000
8/DEPTH=.3	.000	.39%	.0%	.0%	.0%	.0%	.0%	.0%	.000
8/DEPTH=.2	.000	.38%	.0%	.0%	.0%	.0%	.0%	.0%	.000
8/DEPTH=.1	.000	.37%	.0%	.0%	.0%	.0%	.0%	.0%	.000
8/DEPTH=.0	.000	.36%	.0%	.0%	.0%	.0%	.0%	.0%	.000

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TABLE III=DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA ETA/HEIGHT	0 6.3%	10.0 6.0%	20.0 4.9%	30.0 3.0%	50.0 3.6%	75.0 32.6%	100.0 25.0%	130.0 2.6%	180.0 7.3%
SURFACE	.000 *****	3.935 .6%	7.684 .4%	11.080 .0%	16.319 1.1%	19.352 2.2%	18.554 2.7%	11.244 2.4%	.000 *****
S/DEPTH=1.0	.000 *****	3.427 .2%	6.746 .3%	9.852 .4%	15.046 .7%	18.867 1.3%	14.058 1.0%	9.122 2.1%	.000 *****
S/DEPTH=.9	.000 *****	2.507 .1%	4.936 .1%	7.211 .2%	11.024 .4%	13.848 .9%	10.351 .8%	6.750 1.3%	.000 *****
S/DEPTH=.8	.000 *****	1.839 .2%	3.620 .1%	5.290 .1%	8.093 .1%	10.180 .4%	7.841 .2%	4.977 .6%	.000 *****
S/DEPTH=.7	.000 *****	1.353 .5%	2.664 .4%	3.893 .4%	5.960 .3%	7.505 .0%	5.668 .4%	3.698 .1%	.000 *****
S/DEPTH=.6	.000 *****	1.000 .8%	1.970 .8%	2.880 .6%	4.412 .7%	5.562 .5%	4.243 .9%	2.772 .8%	.000 *****
S/DEPTH=.5	.000 *****	.747 .7%	1.471 1.3%	2.151 1.2%	3.296 1.2%	4.159 1.1%	3.228 1.5%	2.112 1.4%	.000 *****
S/DEPTH=.4	.000 *****	.567 .5%	1.116 1.8%	1.632 1.7%	2.503 1.7%	3.161 1.6%	2.526 2.1%	1.655 2.0%	.000 *****
S/DEPTH=.3	.000 *****	.442 .4%	.871 1.1%	1.274 2.3%	1.955 2.2%	2.471 2.2%	2.067 2.6%	1.356 2.6%	.000 *****
S/DEPTH=.2	.000 *****	.361 .3%	.711 1.1%	1.040 2.7%	1.597 2.7%	2.020 2.7%	1.809 3.0%	1.188 3.0%	.000 *****
S/DEPTH=.1	.000 *****	.315 .3%	.621 1.1%	.909 2.8%	1.395 3.1%	1.766 3.1%	1.726 3.2%	1.133 3.2%	.000 *****
S/DEPTH=.0	.000 *****	.300 .3%	.592 1.1%	.866 2.8%	1.330 3.2%	1.685 3.2%	1.726 3.2%	1.133 3.2%	.000 *****

CASE 8=A

TABLE 14-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

THETA ETA/HEIGHT	0 6.3%	10.0 524 6.0%	20.0 494 4.9%	30.0 447 3.0%	50.0 310 3.6%	75.0 1097 32.8%	100.0 1116 25.0%	130.0 1373 22.6%	180.0 1866 7.5%
SURFACE	19.100 3%	18.769 2%	17.621 1%	15.789 5%	10.535 1.6%	2.382 4.1%	5.741 1.8%	15.485 1.9%	18.980 1.6%
S/DEPTH=1.0	17.022 5%	16.719 5%	15.819 6%	14.353 8%	9.929 1.3%	2.390 4.1%			
S/DEPTH=.9	12.926 4%	12.706 4%	12.052 5%	10.985 6%	7.764 1.0%	2.262 2.8%	3.879 2%	12.192 1.7%	15.443 2.1%
S/DEPTH=.8	9.686 2%	9.536 2%	9.060 2%	8.284 3%	5.939 6%	1.926 1.9%	2.563 2%	8.659 1.1%	11.050 1.3%
S/DEPTH=.7	7.198 1%	7.082 1%	6.737 1%	6.174 0%	4.470 2%	1.550 1.2%	1.723 6%	6.177 8.7%	7.927 8.7%
S/DEPTH=.6	5.288 4%	5.204 4%	4.954 4%	4.547 3%	3.314 2%	1.200 6%	1.172 1.0%	4.407 3.1%	5.680 4.1%
S/DEPTH=.5	3.831 7%	3.771 7%	3.592 7%	3.300 7%	2.417 5%	.901 5%	.602 5%	3.126 2.5%	4.041 2.8%
S/DEPTH=.4	2.714 1.1%	2.671 1.0%	2.546 1.0%	2.341 1.0%	1.720 9%	.654 9%	.544 9%	2.181 8%	2.826 8%
S/DEPTH=.3	1.842 1.3%	1.814 1.3%	1.729 1.3%	1.591 1.3%	1.171 1.2%	.451 1.2%	.359 1.2%	1.465 1.9%	1.902 1.1%
S/DEPTH=.2	1.141 1.5%	1.123 1.5%	1.071 1.5%	.985 1.5%	.727 1.2%	.282 1.2%	.218 1.2%	.901 1.9%	1.171 1.2%
S/DEPTH=.1	.585 1.5%	.536 1.5%	.511 1.5%	.471 1.5%	.347 1.2%	.136 1.2%	.103 1.2%	.429 1.2%	.557 1.2%
S/DEPTH=.0	.000 0.0%	.000 0.0%	.000 0.0%	.000 0.0%	.000 0.0%	.000 0.0%	.000 0.0%	.000 0.0%	.000 0.0%

TABLE V=DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

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TABLE VI=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA ETA/HEIGHT	0 .534 6.3%	10.0 .524 6.0%	20.0 .494 4.9%	30.0 .447 3.0%	50.0 .310 =3.6%	75.0 .097 =32.8%	100.0 =116 25.0%	130.0 =373 =2.6%	180.0 =466 =7.3%
SURFACE	1.252	1.252	2.446	3.530	5.212	6.203	5.969	3.635	.000
S/DEPTH=1.0	1.2%	1.2%	1.0%	.7%	.1%	.9%	-1.1%	.3%	*****
S/DEPTH=.9	.5%	.5%	2.147	3.138	4.803	6.046	.0%	2.938	.000
S/DEPTH=.8	.8%	.8%	1.568	2.292	3.510	4.424	.4%	.2%	*****
S/DEPTH=.7	.5%	.5%	1.144	1.672	2.562	3.232	.7%	2.152	.000
S/DEPTH=.6	.422	.422	1.832	1.217	1.865	2.354	1.0%	.4%	*****
S/DEPTH=.5	1.5%	1.5%	.602	1.44	1.4%	1.3%	1.1%	1.571	.000
S/DEPTH=.4	.306	.306	1.8%	.881	1.351	1.706	1.6%	1.0%	*****
S/DEPTH=.3	*****	*****	.432	.631	.969	1.224	1.251	1.5%	.000
S/DEPTH=.2	.219	.219	2.2%	2.1%	2.1%	2.1%	2.0%	1.9%	*****
S/DEPTH=.1	*****	*****	.303	.444	.681	.861	.881	.578	.000
S/DEPTH=.0	.154	.154	*****	2.5%	2.4%	2.4%	2.4%	2.3%	*****
S/DEPTH=.3	.104	.104	.205	.299	.460	.582	.595	.391	.000
S/DEPTH=.2	.064	.064	*****	*****	2.7%	2.7%	2.7%	2.6%	*****
S/DEPTH=.1	*****	*****	.126	.185	.284	.359	.368	.241	.000
S/DEPTH=.0	.031	.031	*****	*****	*****	2.9%	2.9%	*****	*****
S/DEPTH=.0	*****	*****	.060	.088	.135	.171	.175	.115	.000
S/DEPTH=.0	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.0	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.534	.524	.494	.447	.310	.097	.000	.373	.466
	6.5%	6.0%	4.9%	3.0%	3.6%	32.6%	25.0%	2.6%	7.3%
SURFACE	1.833	1.766	1.578	1.300	.655	.092	.038	.612	.981
S/DEPTH .10	.2%	.0%	.5%	.1%	.3%	.6%	.000	.1%	.1%
S/DEPTH .9	1.321	1.281	1.165	.988	.542	.086	.019	.369	.627
S/DEPTH .8	.632	.613	.558	.473	.260	.042	.009	.12%	.15%
S/DEPTH .7	.299	.290	.264	.224	.123	.020	.004	.175	.297
S/DEPTH .6	.140	.136	.124	.105	.056	.009	.000	.082	.14%
S/DEPTH .5	.029	.028	.026	.022	.012	.002	.001	.038	.064
S/DEPTH .4	.013	.012	.011	.010	.005	.001	.000	.017	.029
S/DEPTH .3	.005	.005	.005	.004	.002	.000	.000	.008	.013
S/DEPTH .2	.002	.002	.002	.001	.001	.000	.000	.003	.005
S/DEPTH .1	.000	.000	.000	.000	.000	.000	.000	.001	.002
S/DEPTH .0	.000	.000	.000	.000	.000	.000	.000	.000	.000

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TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA ETA/HEIGHT	0 .534 6.3%	10.0 .524 6.0%	20.0 .494 4.9%	30.0 .447 3.0%	50.0 .310 3.6%	75.0 .097 32.8%	100.0 .116 25.0%	130.0 .373 2.6%	180.0 .466 7.3%
SURFACE	.000 *****	.936 1.3%	1.823 1.0%	2.618 .5%	3.807 3.6%	4.424 1.7%	4.155 1.9%	2.455 2.8%	.000 *****
S/DEPTH=1.0	.000 *****	.771 2%	1.518 2%	2.218 1%	3.393 2.1%	4.267 2.5%	2.770 2.3%	1.803 2.7%	.000 *****
S/DEPTH=.9	.000 *****	.491 4%	.966 4%	1.412 4%	2.161 2%	2.721 2.0%	1.737 2%	1.133 2.1%	.000 *****
S/DEPTH=.8	.000 *****	.307 7%	.604 7%	.883 7%	1.353 6%	1.705 6%	1.066 6%	.696 5%	.000 *****
S/DEPTH=.7	.000 *****	.188 1.1%	.370 1.1%	.541 1.0%	.828 1.0%	1.045 8%	.7 7%	.415 4%	.000 *****
S/DEPTH=.6	.000 *****	.112 1.4%	.220 1.4%	.321 1.4%	.493 1.4%	.622 1.3%	.635 1.2%	.415 1.0%	.000 *****
S/DEPTH=.5	.000 *****	.064 .8%	.126 .8%	.184 .8%	.282 1.8%	.356 1.7%	.363 1.6%	.238 1.5%	.000 *****
S/DEPTH=.4	.000 *****	.034 .3%	.067 .3%	.099 .3%	.151 .3%	.191 .3%	.196 .3%	.128 .3%	.000 *****
S/DEPTH=.3	.000 *****	.017 .1%	.033 .1%	.048 .1%	.074 .1%	.093 .1%	.095 .1%	.062 .1%	.000 *****
S/DEPTH=.2	.000 *****	.007 .01%	.013 .01%	.019 .01%	.029 .02%	.037 .03%	.038 .03%	.025 .03%	.000 *****
S/DEPTH=.1	.000 *****	.002 .002%	.003 .003%	.004 .004%	.007 .007%	.009 .009%	.009 .009%	.006 .006%	.000 *****
S/DEPTH=.0	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****

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TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA ETA/HEIGHT	0 534 6.5%	10.0 524 6.0%	20.0 494 4.9%	30.0 447 3.0%	50.0 310 3.6%	75.0 197 32.8%	100.0 116 25.0%	130.0 373 28.6%	180.0 466 27.3%
SURFACE	1.068	1.047	.988	.893	.620	.195	.231	.932	.932
S/DEPTH=1.0	1.1%	1.0%	.8%	.5%	.4%	.18%	.0%	.1%	.6%
S/DEPTH= .9	.939	.923	.878	.803	.578	.192	.163	.596	.766
S/DEPTH= .8	.4%	.4%	.3%	.3%	.0%	.13%	.16%	.3%	.1%
S/DEPTH= .7	.702	.690	.657	.602	.437	.154	.113	.432	.557
S/DEPTH= .6	.7%	.7%	.6%	.6%	.3%	.7%	.121	.10%	.1%
S/DEPTH= .5	.523	.514	.490	.450	.329	.3%	.23%	.315	.408
S/DEPTH= .4	1.0%	1.0%	1.0%	.9%	.7%	.093	.079	.16%	1.5%
S/DEPTH= .3	.389	.383	.365	.336	.246	.1%	.31%	.231	.300
S/DEPTH= .2	1.4%	1.4%	1.4%	1.3%	1.1%	.185	.056	.23%	2.5%
S/DEPTH= .1	.290	.286	.273	.251	.140	.071	.041	.172	2.524
S/DEPTH= .0	1.6%	1.6%	1.6%	1.7%	1.5%	.4%	.055	.3%	2.9%
S/DEPTH= .0	2.18	2.15	2.05	2.19	1.40	.055	.041	.30%	2.9%
S/DEPTH= .4	.167	.164	.157	.144	.107	.042	.030	.130	.170
S/DEPTH= .3	2.6%	2.6%	2.6%	2.5%	2.2%	.6%	.6%	.36%	3.6%
S/DEPTH= .2	.131	.129	.123	.113	.084	.034	.023	.101	.132
S/DEPTH= .1	3.0%	3.0%	2.9%	2.9%	2.5%	.6%	.6%	.46%	4.3%
S/DEPTH= .0	1.07	1.06	1.01	.953	.69	.028	.019	.083	1.08
S/DEPTH= .0	3.5%	3.3%	3.2%	3.2%	2.8%	.6%	.6%	.53%	5.0%
S/DEPTH= .0	.094	.092	.088	.081	.060	.025	.016	.072	.094
S/DEPTH= .0	3.6%	3.6%	3.5%	3.4%	3.0%	.6%	.6%	.59%	5.5%
S/DEPTH= .0	.090	.088	.084	.078	.058	.023	.015	.069	.090
S/DEPTH= .0	3.7%	3.6%	3.6%	3.5%	3.1%	.6%	.6%	.61%	5.7%

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TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA#	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.008	.014	.019	.020	.009	.006	.015	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.028	.026	.020	.011	.010	.030	.029	.010	.037
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

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TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	1.013 (1.6%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.496 (.9%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.502 (.1.9%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.998 (.1.4%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.521 (.9%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.522 (.5%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.999 (.4%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.537 (1.2%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.017 (67.1%)

CASE 8=A

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

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* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR
      DEFINED IN EQUATION (46)
      LINEAR          .012912          STREAM FUNCTION          .000000

(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR
      DEFINED IN EQUATION (47)
      LINEAR          .023215          STREAM FUNCTION          .000039

(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR
      DEFINED IN EQUATION (46)
      LINEAR          .020919          STREAM FUNCTION          .000000

(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR
      DEFINED IN EQUATION (47)
      LINEAR          .036830          STREAM FUNCTION          .000061

(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER
      DEFINED IN EQUATION (48)
      LINEAR          .151341          STREAM FUNCTION          .148196

(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER
      DEFINED IN EQUATION (49)
      LINEAR          .128825          STREAM FUNCTION          .128062

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CASE 8=B

5TH ORDER STREAM FUNCTION WAVE THEORY

LO ■ DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO=(G/6.28318)^{.5}T^{**2}$
 DEFINITIONS
 H ■ WAVE HEIGHT G ■ GRAVITATIONAL CONSTANT
 T ■ WAVE PERIOD X(N) ■ NTH STREAM FUNCTION COEFFICIENT
 DPT ■ WATER DEPTH L ■ WAVE LENGTH
 PSI ■ VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO ■ .083974 DPT/LO ■ .499998
 H/DPT ■ .167949
 L/LO ■ 1.059180 PSI/(G*H*T) ■ -.009830

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) ■ -.810478E-02 X(2)/(H*T*G) ■ -.433063E-05
 X(3)/(H*T*G) ■ -.796799E-08 X(4)/(H*T*G) ■ -.463841E-10
 X(5)/(H*T*G) ■ -.164178E-12

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD... DEFINED IN EQUATION (21)

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TABLE 11. DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD... DEFINED IN EQUATION (22)

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TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA ETA/HEIGHT	0 12.2%	10.0 570	20.0 555	30.0 514	40.0 450	50.0 285	75.0 110.9%	100.0 36.9%	130.0 100.0	180.0 130.0
			8.5%	3.9%	12.6%	11.7%	10.2%	9.450	10.2%	9.450
SURFACE	.000	4.720	9.019	12.601	17.196	18.635	16.671	16.671	9.450	.000
S/DEPTH=1.0	.000	5.7%	4.0%	1.4%	4.3%	9.8%	11.7%	11.7%	10.2%	*****
S/DEPTH=.9	.000	3.481	6.823	9.897	14.629	18.074	18.074	18.074	10.2%	*****
S/DEPTH=.8	.000	1.5%	1.0%	.2%	2.1%	5.7%	5.7%	5.7%	10.2%	*****
S/DEPTH=.7	.000	2.534	4.974	7.534	10.916	13.836	13.836	13.836	10.2%	*****
S/DEPTH=.6	.000	1.1%	.8%	.2%	1.4%	3.9%	3.9%	3.9%	10.2%	*****
S/DEPTH=.5	.000	1.858	3.652	5.320	8.067	10.002	10.002	10.002	10.2%	*****
S/DEPTH=.4	.000	1.4%	1.2%	.8%	1.4%	2.2%	2.2%	2.2%	10.2%	*****
S/DEPTH=.3	.000	1.372	2.699	3.936	5.990	7.469	7.469	7.469	10.2%	*****
S/DEPTH=.2	.000	2.1%	2.0%	1.7%	1.9%	2.4%	2.4%	2.4%	10.2%	*****
S/DEPTH=.1	.000	1.022	2.011	2.935	4.879	5.809	5.809	5.809	10.2%	*****
S/DEPTH=.0	.000	3.2%	3.1%	2.9%	2.4%	1.5%	.5%	.5%	10.2%	*****
	.000	.769	1.515	2.213	3.384	4.254	4.323	4.323	10.2%	*****
	.000	*****	4.5%	4.4%	4.0%	3.4%	2.7%	2.7%	10.2%	*****
	.000	.590	1.162	1.698	2.602	3.281	3.346	3.346	10.2%	*****
	.000	*****	6.1%	6.8%	5.8%	5.0%	4.9%	4.9%	10.2%	*****
	.000	.465	.917	1.341	2.058	2.803	2.863	2.863	10.2%	*****
	.000	*****	7.8%	7.6%	7.6%	7.3%	7.0%	7.0%	10.2%	*****
	.000	.384	.757	1.108	1.702	2.158	2.213	2.213	10.2%	*****
	.000	*****	*****	9.4%	9.3%	9.1%	8.9%	8.9%	10.2%	*****
	.000	.338	.666	.975	1.501	1.906	1.958	1.958	10.2%	*****
	.000	*****	*****	10.5%	10.5%	10.5%	10.5%	10.5%	10.2%	*****
	.000	.323	.637	1.033	1.636	1.824	1.876	1.876	10.2%	*****
	.000	*****	*****	11.0%	11.0%	10.9%	10.8%	10.8%	10.2%	*****

CASE. 8=8

TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

DEPTH	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
HEIGHT	12.0%	11.3%	8.5%	3.9%	12.6%	110.9%	36.9%	7.6%	16.2%
DEPTH	17.99	17.161	15.630	13.321	7.397	.451	7.261	14.559	16.997
DEPTH	14.838	14.307	13.332	11.761	7.162	.280	10.7%	8.6%	7.1%
DEPTH	11.598	11.363	10.669	9.548	6.226	.756	5.093	12.645	15.494
DEPTH	8.982	8.814	8.316	7.11%	3.6%	1.085	3.265	9.1%	10.7%
DEPTH	6.841	6.720	6.360	5.776	4.027	1.087	2.131	5.9%	7.2%
DEPTH	5.132	5.044	4.785	4.363	3.095	.951	1.413	3.3%	4.3%
DEPTH	3.783	3.720	3.535	3.232	2.320	.771	2.9%	1.1%	1.9%
DEPTH	2.718	2.674	2.543	2.330	1.686	.589	4.4%	3.249	4.145
DEPTH	1.867	1.837	1.748	1.603	1.147	.421	4.0	2.8%	2.917
DEPTH	1.165	1.147	1.092	1.002	3.5%	.270	2.47	2.375	2.917
DEPTH	.559	.551	.524	.482	.352	.131	1.16	2.4%	1.9%
DEPTH	.000	.000	.000	.000	.000	.000	.000	1.534	1.94
DEPTH	.000	.000	.000	.000	.000	.000	.000	3.6%	3.2%
DEPTH	.000	.000	.000	.000	.000	.000	.000	4.0%	4.2%
DEPTH	.000	.000	.000	.000	.000	.000	.000	.451	.583
DEPTH	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 8=B

TABLE V=DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	12.62	.570	.555	.514	.450	.285	.061	.138	.430
		11.33	8.53	3.93	-12.63	-110.93	36.93	-7.63	-16.23
SURFACE	2.708	2.584	2.245	1.774	.807	.096	.045	.618	.966
S/DEPTH=1.0	.03	.08	.12	.06	.15	.09	.04	.27	.63
S/DEPTH= .9	.46	.489	.159	.139	.012	.091	.028	.492	.826
S/DEPTH= .8	.859	.833	.756	.639	.346	.053	.016	.382	.543
S/DEPTH= .7	.12	.13	.16	.22	.40	.031	.009	.280	.472
S/DEPTH= .6	.486	.471	.428	.362	.197	.023	.005	.162	.274
S/DEPTH= .5	.233	.227	.202	.173	.114	.018	.003	.463	.593
S/DEPTH= .4	.279	.271	.246	.222	.067	.011	.005	.803	.161
S/DEPTH= .3	.593	.583	.573	.542	.383	.006	.003	.057	.097
S/DEPTH= .2	.164	.159	.144	.122	.040	.004	.002	.055	.059
S/DEPTH= .1	.943	.943	.933	.903	.733	.004	.001	.021	.036
S/DEPTH= .0	.098	.095	.086	.073	.040	.006	.001	.012	.020
	.059	.058	.052	.044	.024	.004	.002	.006	.009
	.036	.035	.032	.027	.015	.002	.001	.001	.001
	.021	.020	.018	.015	.008	.001	.001	.001	.001
	.009	.009	.008	.007	.004	.001	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 8=B

TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.570	.555	.514	.450	.285	.061	.138	.356	.430
	12.2%	11.3%	8.5%	3.9%	12.6%	110.9%	36.9%	7.6%	16.2%
SURFACE	.000	1.493	2.869	4.038	5.611	6.211	5.652	3.263	.000
S/DEPTH#1.0	.000	5.9%	4.6%	2.8%	1.1%	4.2%	4.4%	1.2%	.000
	.000	1.114	2.190	3.192	4.845	6.022			
S/DEPTH# .9	.000	2.9%	2.7%	2.4%	1.3%	3%			
	.000	.816	1.605	2.302	3.568	4.458	4.502	2.904	.000
S/DEPTH# .8	.000	3.8%	3.4%	3.2%	2.5%	1.5%	.0%	1.7%	.000
	.000	.998	1.178	1.720	2.627	3.295	3.341	2.166	.000
S/DEPTH# .7	.000	4.5%	4.4%	4.2%	3.7%	2.9%	1.9%	.7%	.000
	.000	.938	.863	1.261	1.929	2.428	2.470	1.608	.000
S/DEPTH# .6	.000	5.5%	5.5%	5.3%	5.0%	4.4%	3.7%	2.9%	.000
	.000	.519	.629	.920	1.410	1.779	1.615	1.166	.000
S/DEPTH# .5	.000	6.8%	6.6%	6.5%	6.3%	5.8%	5.4%	4.7%	.000
	.000	.231	.454	.664	1.020	1.289	1.318	.864	.000
S/DEPTH# .4	.000	.163	.321	.470	.723	.915	6.8%	6.4%	.000
	.000	.163	.321	.470	.723	.915	.938	.616	.000
S/DEPTH# .3	.000	.111	.218	.320	.491	.623	8.1%	7.8%	.000
	.000	.111	.218	.320	.491	.623	.639	.421	.000
S/DEPTH# .2	.000	.069	.135	.198	.305	.387	9.4%	8.9%	.000
	.000	.069	.135	.198	.305	.387	.397	.262	.000
S/DEPTH# .1	.000	.033	.065	.095	.146	.185	10.1%	.000	.000
	.000	.033	.065	.095	.146	.185	.190	.126	.000
S/DEPTH# .0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 8-B

TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT#	.570	.555	.514	.450	.285	.061	.138	.356	.330
	12.2%	11.3%	8.5%	3.9%	12.6%	110.9%	36.9%	7.6%	16.2%
SURFACE	2.499	2.378	2.048	1.599	.703	.080	.036	.070	.721
	.3%	.7%	.5%	.7%	.17%	*****	*****	.3%	.5%
S/DEPTH#1.0	1.267	1.227	1.112	.938	.503	.074			
	.5%	.6%	.5%	.7%	.10%	*****			
S/DEPTH# .9	.619	.600	.544	.460	.249	.038	.020	.354	.593
	.2%	.2%	.2%	.3%	.05%	*****	*****	.5%	.7%
S/DEPTH# .8	.300	.291	.264	.224	.121	.019	.010	.173	.291
	.6%	.5%	.2%	.2%	.05%	*****	*****	.1%	.2%
S/DEPTH# .7	.144	.140	.127	.108	.059	.009	.005	.083	.141
	.4%	.3%	.3%	.2%	.05%	*****	*****	.1%	.1%
S/DEPTH# .6	.066	.066	.060	.051	.028	.004	.002	.040	.067
	.0%	.0%	.0%	.0%	.02%	*****	*****	.0%	.0%
S/DEPTH# .5	.032	.031	.028	.024	.013	.002	.001	.019	.031
	.0%	.0%	.0%	.0%	.01%	*****	*****	.0%	.0%
S/DEPTH# .4	.014	.014	.013	.011	.006	.001	.000	.008	.014
	.0%	.0%	.0%	.0%	.00%	*****	*****	.0%	.0%
S/DEPTH# .3	.006	.006	.005	.005	.002	.000	.000	.004	.006
	.0%	.0%	.0%	.0%	.00%	*****	*****	.0%	.0%
S/DEPTH# .2	.002	.002	.002	.002	.001	.000	.000	.001	.002
	.0%	.0%	.0%	.0%	.00%	*****	*****	.0%	.0%
S/DEPTH# .1	.000	.000	.000	.000	.000	.000	.000	.000	.000
	.0%	.0%	.0%	.0%	.00%	*****	*****	.0%	.0%
S/DEPTH# .0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	.0%	.0%	.0%	.0%	.00%	*****	*****	.0%	.0%

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TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.570	.555	.514	.450	.285	.061	.138	.356	.430
	12.2%	11.3%	8.5%	3.9%	12.6%	110.9%	36.9%	7.6%	16.2%
SURFACE	.000	1.181	2.248	3.120	4.177	4.389	3.806	2.080	.000
S/DEPTH#1.0	.000	6.3%	4.7%	2.2%	3.1%	7.5%	7.7%	3.1%	.000
S/DEPTH# .9	.000	2.0%	1.7%	1.3%	2.176	2.709	2.726	1.749	.000
S/DEPTH# .8	.000	2.5%	2.3%	2.0%	1.1%	1.4%	2.0%	4.1%	.000
S/DEPTH# .7	.000	3.2%	3.1%	2.9%	1.373	1.717	1.736	1.121	.000
S/DEPTH# .6	.000	.116	5.4%	5.3%	5.0%	4.4%	3.8%	3.0%	.000
S/DEPTH# .5	.000	.067	.131	.192	.294	.371	.379	.248	.000
S/DEPTH# .4	.000	.036	.071	.104	.160	.202	.207	.136	.000
S/DEPTH# .3	.000	.018	.035	.051	.078	.099	.102	.067	.000
S/DEPTH# .2	.000	.007	.014	.020	.031	.040	.041	.027	.000
S/DEPTH# .1	.000	.002	.003	.005	.007	.009	.010	.006	.000
S/DEPTH# .0	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 8-B

TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA ETA/HEIGHT	0 .570 12.2X	10.0 .555 11.3X	20.0 .514 8.5X	30.0 .450 3.9X	50.0 .285 12.6X	75.0 .061 110.9X	100.0 36.9X	130.0 7.6X	180.0 180.0 180.0 16.2X
SURFACE	1.139 4.7X	1.110 4.3X	1.027 3.1X	.901 1.5X	.571 2.4X	.123 9.7X	.275 1.8X	.712 .9X	.861 2.8X
S/DEPTH=.10	.893 1.9X	.877 1.8X	.828 1.5X	.750 1.0X	.515 .8X	.123 10.1X	.18X	.9X	2.8X
S/DEPTH=.9	.685 2.3X	.673 2.3X	.638 2.0X	.580 1.6X	.408 .9X	.118 8.1X	.201 6.1X	.625 .5X	.789 2.5X
S/DEPTH=.6	.522 3.0X	.513 3.0X	.487 2.8X	.445 2.4X	.318 .9X	.103 6.9X	.135 10.3X	.155 3.5X	.579 2.8X
S/DEPTH=.7	.396 3.9X	.390 3.8X	.371 3.6X	.340 3.3X	.246 1.8X	.085 6.2X	.093 14.9X	.334 6.5X	.428 5.5X
S/DEPTH=.6	.302 4.8X	.297 4.7X	.283 4.5X	.259 4.2X	.189 2.6X	.069 6.2X	.065 20.5X	.248 9.5X	.319 8.5X
S/DEPTH=.5	.231 5.7X	.227 5.6X	.217 5.4X	.199 5.0X	.146 3.2X	.055 6.2X	.047 20.5X	.186 12.8X	.241 11.5X
S/DEPTH=.4	.180 6.5X	.177 6.4X	.169 6.1X	.155 5.7X	.115 3.6X	.045 6.2X	.034 20.5X	.142 16.2X	.185 14.7X
S/DEPTH=.3	.143 7.1X	.141 7.0X	.135 6.7X	.124 6.2X	.092 3.6X	.036 6.2X	.026 20.5X	.112 19.7X	.146 17.9X
S/DEPTH=.2	.119 7.6X	.118 7.5X	.112 7.2X	.103 6.5X	.077 3.6X	.031 6.2X	.021 20.5X	.093 23.0X	.121 20.9X
S/DEPTH=.1	.106 8.0X	.104 7.8X	.099 7.5X	.092 6.8X	.068 3.7X	.028 6.2X	.018 20.5X	.082 25.5X	.107 23.1X
S/DEPTH=.0	.101 8.1X	.100 7.9X	.095 7.5X	.088 6.8X	.066 3.6X	.027 6.2X	.017 20.5X	.078 26.4X	.102 23.0X

CASE 8=B

TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.044	.080	.101	.098	.040	.022	.051	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.043	.039	.028	.011	.029	.062	.052	.030	.081
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 8=B

TABLE XI=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	1.059 (5.8%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.480 (-4.1%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.498 (-8.1%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.979 (-6.1%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.542 (-4.4%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.554 (1.6%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.992 (-1.8%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.572 (3.7%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.030 (149.1%)

CASE 8-B

TABLE XI(CONT)=OVERALL WAVE PARAMETERS,.. DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

■ (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.058970	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.046639	STREAM FUNCTION	.000014
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.107014	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.080862	STREAM FUNCTION	.000049
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.345298	STREAM FUNCTION	.318498
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.243224	STREAM FUNCTION	.236550

CASE 8=C

7TH ORDER STREAM FUNCTION WAVE THEORY

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/g \cdot 28318) \cdot T^2$

DEFINITIONS

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
DPT = WATER DEPTH L = WAVE LENGTH
PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .125988 DPT/LO = .499998
H/DPT = .251977
L/LO = 1.125195 PSI/(G*H*T) = -.013381

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.931214e-02 X(2)/(H*T*G) = -.168029e-04
X(3)/(H*T*G) = -.938674e-07 X(4)/(H*T*G) = -.939917e-09
X(5)/(H*T*G) = -.900754e-11 X(6)/(H*T*G) = -.823671e-13
X(7)/(H*T*G) = -.194169e-14

CASE 8=C

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA ETA/HEIGHT	0 .61 18.2	10.0 .586 16.0	20.0 .521 9.8	30.0 .434 .2	50.0 .243 -32.4	75.0 .025 *****	100.0 42.0	130.0 16.3	180.0 -389 -28.7
SURFACE	4.591	4.397	3.903	3.269	1.959	.551	-.528	-1.608	1.958
S/DEPTH=1.1	1.9	-4.2	-10.0	-17.6	-33.5	-63.9	3.3	-10.9	-8.4
S/DEPTH=1.0	11.3	12.0	14.0	17.3	21.3	24.7	27.2	29.5	31.4
S/DEPTH=.9	2.130	2.082	1.980	1.801	1.669	.544	-.431	-1.535	1.947
S/DEPTH=.8	1.598	1.571	1.491	1.361	.978	.352	-.314	-1.171	1.494
S/DEPTH=.7	1.208	1.188	1.129	1.033	.749	.278	-.231	-.895	1.149
S/DEPTH=.6	.921	.906	.862	.790	.577	.219	-.172	-.688	1.77
S/DEPTH=.5	.710	.699	.666	.611	.448	.173	-.130	-.535	1.691
S/DEPTH=.4	.558	.550	.524	.481	.354	.138	-.101	-.422	1.547
S/DEPTH=.3	.452	.445	.424	.390	.287	.113	-.081	-.345	1.445
S/DEPTH=.2	.331	.335	.358	.329	.243	.096	-.068	-.290	1.377
S/DEPTH=.1	.341	.336	.320	.295	.218	.087	-.050	-.260	1.338
S/DEPTH=.0	.328	.323	.308	.284	.210	.084	-.058	-.250	1.326
	17.8	17.8	17.8	17.7	17.7	17.7	17.7	17.5	17.2

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

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TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

THETA =	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	6.11	9.86	9.521	4.34	.243	.025	.150	.389
	18.2%	16.0%	9.8%	.2%	52.4%	*****	42.0%	-28.7%
SURFACE								
S/DEPTH=1.1	15.982	15.005	12.580	9.572	3.554	2.862	7.787	12.668
	24.9%	22.8%	17.4%	11.2%	7.1%	39.0%	28.8%	21.6%
S/DEPTH=1.0	15.289	14.575	12.580	9.664				
	19.5%	18.4%	15.1%	10.1%				
S/DEPTH=.9	13.663	12.627	11.376	9.480	4.387	2.690		
	9.1%	8.3%	6.1%	2.4%	10.1%	2.0%		
S/DEPTH=.8	10.610	10.326	9.501	8.205	4.607	.735	5.894	11.975
	4.0%	3.0%	1.9%	.7%	9.8%	*****	13.2%	26.8%
S/DEPTH=.7	8.380	8.167	7.623	6.725	4.158	.182	3.601	8.631
	1.8%	1.4%	.3%	.5%	8.1%	*****	6.3%	18.6%
S/DEPTH=.6	6.992	6.558	5.964	5.330	3.487	.548	2.480	6.246
	1.4%	1.2%	.4%	1.0%	5.8%	*****	.9%	12.0%
S/DEPTH=.5	4.947	4.852	4.573	4.122	2.795	.636	1.637	4.521
	2.1%	1.9%	1.3%	.3%	3.3%	*****	3.4%	6.7%
S/DEPTH=.4	3.599	3.632	3.434	3.113	2.161	.591	1.088	3.253
	3.3%	3.1%	2.7%	1.9%	.9%	*****	6.7%	2.5%
S/DEPTH=.3	2.692	2.645	2.506	2.281	1.609	.489	.721	2.301
	4.0%	4.5%	4.2%	3.6%	1.4%	*****	*****	.9%
S/DEPTH=.2	1.868	1.836	1.742	1.590	1.133	.368	.466	1.565
	6.0%	5.9%	5.6%	5.1%	3.3%	*****	*****	3.5%
S/DEPTH=.1	1.175	1.156	1.098	1.003	.720	.243	.279	.971
	7.1%	7.8%	6.8%	6.0%	*****	*****	*****	5.4%
S/DEPTH=.0	.567	.558	.530	.485	.349	.120	.131	.465
	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****

CASE 8=C

TABLE V=DIMENSIONLESS DRAG FORCE COMPONENT FIELD....DEFINED IN EQUATION (25)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHTS	.611	.586	.521	.434	.323	.025	.150	.329	.389
	16.2%	16.0%	9.8%	.2%	32.0%	*****	42.0%	10.5%	28.7%
SURFACE	3.510	3.268	2.637	1.906	.731	*****	.045	.490	.743
S/DEPTH=1.1	.3%	3.42%	12.4%	24.7%	50.3%	*****	*****	6.4%	.1%
S/DEPTH=1.0	16.7%	2.470	2.202	1.609	.24.1%	.066	.031	.448	.735
S/DEPTH=.9	11.6%	1.392	1.250	1.037	.530	*****	*****	13.9%	1.0%
S/DEPTH=.8	8.25	12.1%	13.7%	16.1%	25.5%	*****	.017	.266	.441
S/DEPTH=.7	5.5%	5.9%	6.9%	8.6%	14.7%	*****	.010	.160	.267
S/DEPTH=.6	1.0%	.464	.420	.353	5.1%	*****	.006	.098	1.6%
S/DEPTH=.5	7.6%	.276	.250	.210	*****	*****	*****	*****	.164
S/DEPTH=.4	.172	.167	.151	.128	.069	*****	.003	.061	*****
S/DEPTH=.3	.106	.103	.093	.079	.043	*****	*****	*****	.103
S/DEPTH=.2	.066	.064	.058	.049	.027	*****	.002	.038	.065
S/DEPTH=.1	.041	.040	.036	.031	.017	*****	.001	.024	*****
S/DEPTH=.0	.024	.023	.021	.018	.010	*****	.001	.014	.024
	.011	.011	.010	.008	.005	*****	.000	.006	.011
	.000	.000	.000	.000	.000	*****	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 8=C

TABLE VI=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA =	0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0	140.0	150.0	160.0	170.0	180.0
ETA/HEIGHT=	18.2%	16.0%	15.8%	15.6%	15.4%	15.2%	15.0%	14.8%	14.6%	14.4%	14.2%	14.0%	13.8%	13.6%	13.4%	13.2%	13.0%	12.8%	12.6%
SURFACE	.000	1.921	3.512	4.664	5.852	5.955	5.158	4.552	4.005	3.529	3.129	2.739	2.389	2.089	1.799	1.529	1.279	1.049	.839
S/DEPTH=1.1	.000	16.7%	11.9%	5.8%	5.4%	5.4%	5.1%	4.7%	4.3%	3.9%	3.5%	3.1%	2.7%	2.3%	1.9%	1.5%	1.1%	.8%	.5%
S/DEPTH=1.0	.000	16.2%	11.4%	5.6%	5.2%	5.2%	4.9%	4.5%	4.1%	3.7%	3.3%	2.9%	2.5%	2.1%	1.7%	1.3%	.9%	.6%	.3%
S/DEPTH=.9	.000	15.7%	10.9%	5.1%	4.7%	4.7%	4.4%	4.0%	3.6%	3.2%	2.8%	2.4%	2.0%	1.6%	1.2%	.8%	.5%	.2%	.0%
S/DEPTH=.8	.000	15.2%	10.4%	4.6%	4.2%	4.2%	3.9%	3.5%	3.1%	2.7%	2.3%	1.9%	1.5%	1.1%	.7%	.4%	.1%	.0%	.0%
S/DEPTH=.7	.000	14.7%	9.9%	4.1%	3.7%	3.7%	3.4%	3.0%	2.6%	2.2%	1.8%	1.4%	1.0%	.6%	.3%	.0%	.0%	.0%	.0%
S/DEPTH=.6	.000	14.2%	9.4%	3.6%	3.2%	3.2%	2.9%	2.5%	2.1%	1.7%	1.3%	.9%	.5%	.2%	.0%	.0%	.0%	.0%	.0%
S/DEPTH=.5	.000	13.7%	8.9%	3.1%	2.7%	2.7%	2.4%	2.0%	1.6%	1.2%	.8%	.4%	.1%	.0%	.0%	.0%	.0%	.0%	.0%
S/DEPTH=.4	.000	13.2%	8.4%	2.6%	2.2%	2.2%	1.9%	1.5%	1.1%	.7%	.3%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
S/DEPTH=.3	.000	12.7%	7.9%	2.1%	1.7%	1.7%	1.4%	1.0%	.6%	.2%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
S/DEPTH=.2	.000	12.2%	7.4%	1.6%	1.2%	1.2%	0.9%	.5%	.1%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
S/DEPTH=.1	.000	11.7%	6.9%	1.1%	.7%	.7%	.4%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
S/DEPTH=.0	.000	11.2%	6.4%	.6%	.2%	.2%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%

CASE 8=C

TABLE VII=DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THEYA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	18.2X	.611	.586	.521	.434	.243	.025	.339	.389
			16.0X	9.8X	.2X	.32.4X	42.0X	16.3X	28.7X
SURFACE	3.449	3.170	2.507	1.763	.635	.054	.036	.354	.524
S/DEPTH=1.1	1.8X	-2.2X	=12.9X	=27.4X	=58.7X	*****	*****	=8.2X	.1X
	2.360	2.271	2.022	1.656					
S/DEPTH=1.0	=18.7X	=19.6X	=22.4X	=26.9X					
	1.175	1.134	1.017	.842	.427	.052			
S/DEPTH=.9	=14.2X	=14.8X	=16.5X	=19.5X	=29.8X	*****	*****	=316	.517
	.586	.566	.510	.426	.221	.029	.022	=18.1X	1.3X
S/DEPTH=.8	=8.6X	=9.0X	=10.1X	=12.1X	=19.1X	*****	*****	=161	.265
	.291	.282	.255	.214	.113	.016	.011	*****	12.6X
S/DEPTH=.7	=2.5X	=2.7X	=3.5X	=4.8X	*****	*****	*****	=134	.134
	.144	.139	.126	.106	.057	.008	.005	*****	*****
S/DEPTH=.6	*****	*****	*****	*****	*****	*****	*****	*****	.067
	.070	.068	.062	.052	.028	.004	.002	*****	*****
S/DEPTH=.5	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.034	.033	.030	.025	.014	.002	.001	=0.19	.033
S/DEPTH=.4	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.016	.015	.014	.012	.006	.001	.001	=0.09	.015
S/DEPTH=.3	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.007	.007	.006	.005	.003	.000	.000	=0.04	.007
S/DEPTH=.2	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.003	.002	.002	.002	.001	.000	.000	=0.01	.002
S/DEPTH=.1	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.001	.001	.000	.000	.000	.000	.000	=0.00	.001
S/DEPTH=.0	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	=0.00	.000

CASE 8=C

TABLE VII=DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.611	.586	.521	.434	.243	.025	.150	.329	.389
	18.0%	16.0%	9.8%	.2%	.32.4%	*****	42.0%	16.3%	26.7%
SURFACE	.000	1.636	2.920	3.756	4.391	4.114	3.327	1.716	.000
	*****	19.2%	13.0%	5.0%	10.3%	20.3%	19.3%	8.0%	*****
S/DEPTH#1.1	.000	1.306	2.529	3.603					
	*****	8.6%	7.2%	4.8%					
S/DEPTH#1.0	.000	.622	1.602	2.304	3.379	4.010	2.576	1.603	.000
	*****	6.8%	5.6%	4.2%	1.2%	6.8%	8.0%	13.8%	*****
S/DEPTH# .9	.000	.518	1.013	1.466	2.180	2.632	1.678	.000	.000
	*****	6.2%	5.5%	4.5%	1.4%	3.5%	3.5%	7.8%	*****
S/DEPTH# .8	.000	.324	.636	.923	1.386	1.696	1.057	.000	.000
	*****	6.7%	6.2%	5.5%	3.4%	4.0%	6%	2.6%	*****
S/DEPTH# .7	.000	.200	.393	.571	.664	1.068	.658	.423	.000
	*****	*****	7.6%	7.1%	5.6%	3.2%	4.4%	2.0%	*****
S/DEPTH# .6	.000	.120	.236	.345	.524	6.53	.389	.252	.000
	*****	*****	9.3%	9.0%	7.9%	6.2%	7.8%	6.1%	*****
S/DEPTH# .5	.000	.070	.137	.200	.306	9.1%	.216	.141	.000
	*****	*****	*****	*****	10.4%	9.1%	10.9%	*****	*****
S/DEPTH# .4	.000	.038	.075	.110	.168	.212	.108	.071	.000
	*****	*****	*****	*****	*****	11.8%	*****	*****	*****
S/DEPTH# .3	.000	.019	.037	.054	.083	.105	.044	.029	.000
	*****	*****	*****	*****	*****	.043	*****	*****	*****
S/DEPTH# .2	.000	.008	.015	.022	.034	.043	.010	.007	.000
	*****	*****	*****	*****	*****	.010	*****	*****	*****
S/DEPTH# .1	.000	.002	.004	.005	.008	.010	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH# .0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 8=C

TABLE IX=DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.611	.586	.521	.434	.243	.025	.0150	.0329	.0389
	18.2%	16.0%	9.8%	.2%	32.4%	*****	42.0%	16.3%	28.7%
SURFACE	1.223	1.173	1.042	.867	.486	.049	.299	.659	.777
S/DEPTH=1.1	12.0%	10.5%	6.5%	1.5%	8.7%	*****	1.9%	2.1%	5.4%
S/DEPTH=1.0	1.088	1.060	.979	.853					
S/DEPTH=.9	5.7%	5.2%	3.7%	1.3%					
S/DEPTH=.8	.861	.842	.787	.699	.446	.052	.232	.625	.772
S/DEPTH=.7	3.6%	3.2%	2.1%	.3%	.6.1%	*****	12.6%	1.48%	4.8%
S/DEPTH=.6	.673	.660	.620	.557	.373	.078	12.6%	.148%	4.8%
S/DEPTH=.5	2.9%	2.6%	1.7%	.2%	.5.4%	.081	.156	.463	.579
S/DEPTH=.4	.522	.513	.484	.439	.303	.081	23.6%	5.5%	2.8%
S/DEPTH=.3	2.9%	2.7%	1.9%	.6%	.4.5%	.075	.107	.345	.437
S/DEPTH=.2	.404	.397	.377	.343	.242	.075	36.1%	12.6%	9.7%
S/DEPTH=.1	3.3%	3.1%	2.8%	1.2%	.3.9%	.065	.075	.260	.332
S/DEPTH=.0	.314	.309	.293	.268	.192	.065	51.2%	19.6%	16.8%
S/DEPTH=.0	3.6%	3.6%	2.9%	1.6%	.3.7%	.055	.053	.199	.256
S/DEPTH=.0	.245	.241	.230	.211	.153	.055	*****	27.4%	23.6%
S/DEPTH=.0	4.1%	3.9%	3.1%	1.8%	.4.1%	.046	.039	.155	.201
S/DEPTH=.0	.195	.192	.183	.168	.123	.046	*****	35.1%	30.7%
S/DEPTH=.0	4.2%	3.9%	3.1%	1.5%	.5.2%	.040	.030	.125	.162
S/DEPTH=.0	.159	.156	.149	.137	.101	.040	*****	43.5%	37.9%
S/DEPTH=.0	3.9%	3.6%	2.7%	.9%	.6.8%	.035	.024	.105	.137
S/DEPTH=.0	.135	.133	.127	.117	.087	.035	*****	50.9%	44.3%
S/DEPTH=.0	3.4%	3.1%	2.8%	.1%	.8.6%	.032	.021	.093	.122
S/DEPTH=.0	.121	.119	.114	.105	.078	.032	*****	56.4%	49.8%
S/DEPTH=.0	3.0%	2.6%	1.4%	.7%	10.1%	.031	.020	.090	.118
S/DEPTH=.0	.116	.115	.110	.101	.075	.031	*****	58.4%	50.8%
S/DEPTH=.0	2.8%	2.4%	1.2%	1.0%	10.7%	.031	*****	58.4%	50.8%

CASE 8=C

TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.173	.295	.345	.281	.096	.049	.102	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.038	.032	.017	.006	.057	.093	.066	.060	.132
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 8=C

TABLE XI=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	1.125 (11.4%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.447 (-11.7%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.481 (-21.8%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.928 (-17.0%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.557 (-14.2%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.600 (2.4%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.956 (-6.7%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.604 (3.1%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.048 (205.1%)

CASE 8=C

TABLE XI(CONT)-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.174114	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.071671	STREAM FUNCTION	.000033
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.346042	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.132408	STREAM FUNCTION	.000083
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.591216	STREAM FUNCTION	.514018
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.336441	STREAM FUNCTION	.320462

ITERATIONS ON ETA FAILED TO CONVERGE IN 40 ITER

CASE 8=D

8TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

M/LO = .168087 DPT/LO = .499998

H/DPT = .336176

L/LO = 1.193750 PSI/(G*H*T) = -.013882

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.955492E+02 X(2)/(H*T*G) = -.393876E+04

X(3)/(H*T*G) = -.504770E+06 X(4)/(H*T*G) = -.959530E+08

X(5)/(H*T*G) = -.207965E+09 X(6)/(H*T*G) = -.948658E+11

X(7)/(H*T*G) = -.391061E+12 X(8)/(H*T*G) = -.259064E+13

CASE R-D

TABLE 1=DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	26.1%	13.9%	572	456	355	177	140	278	323
			-2.9%	-2.9%	-21.9%	-81.2%	37.8%	-37.8%	-54.7%
SURFACE	6.199	4.782	3.558	2.739	1.464	.328	.496	1.290	1.544
S/DEPTH=1.2	13.8%	9.1%	16.7%	57.9%	-94.2%	-184.9%	.5%	-25.0%	-20.6%
S/DEPTH=1.1	3.584	3.437	3.068	2.604					
S/DEPTH=1.0	-20.1%	-23.6%	12.1%	43.4%					
S/DEPTH=.9	-22.8%	-24.4%	-28.8%	-35.6%	1.294				
S/DEPTH=.8	-21.6%	-22.5%	-25.1%	-29.4%	1.034	.297	.417	1.269	1.240
S/DEPTH=.7	-18.5%	-19.1%	-20.8%	-23.5%	.816	.257	.303	.988	36.0%
S/DEPTH=.6	-14.8%	-14.7%	-15.8%	-17.7%	.642	.216	.223	.976	26.8%
S/DEPTH=.5	-9.5%	-9.8%	-10.5%	-11.7%	.505	.178	.166	.771	18.4%
S/DEPTH=.4	-4.3%	-4.4%	-4.9%	-5.6%	.401	.147	.126	.614	10.5%
S/DEPTH=.3	1.2%	1.1%	.7%	.2%	.324	.122	.098	.498	3.1%
S/DEPTH=.2	6.5%	6.4%	6.2%	5.8%	.268	.103	.079	.413	3.5%
S/DEPTH=.1	11.1%	11.0%	10.9%	10.8%	.231	.090	.067	.357	9.0%
S/DEPTH=.0	14.5%	14.2%	14.0%	13.8%	.210	.082	.060	.250	12.7%
	15.4%	15.4%	15.4%	15.4%	.203	.079	.057	.242	14.0%
					*****	*****	*****	*****	

CASE 8-D

TABLE II-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.677	.572	.456	.355	.177	*****	.002	.140	.523
	26.1%	13.9%	2.9%	21.9%	81.2%		37.8%		54.7%
SURFACE	.000	1.466	1.922	2.143	2.318	2.167	1.803	.969	.000
S/DEPTH=1.2	*****	37.3%	8.0%	16.0%	45.9%	60.5%	56.3%	38.4%	*****
S/DEPTH=1.1	*****		1.499	1.997					
	*****		1.8%	7.8%					
S/DEPTH=1.0	*****		1.004	1.400	1.936				
	*****		7.0%	12.1%	24.2%				
S/DEPTH=.9	*****		1.706	1.004	1.437	1.663	1.577	.954	
	*****		8.8%	13.9%	21.9%	32.8%	42.8%	40.6%	
S/DEPTH=.8	*****		.261	.732	1.071	1.266	1.219	.746	
	*****		10.5%	13.7%	16.1%	26.9%	34.5%	43.3%	
S/DEPTH=.7	*****		.190	.538	.798	.960	.935	.579	.000
	*****		10.1%	12.2%	15.9%	21.5%	27.2%	34.1%	
S/DEPTH=.6	*****		.140	.377	.593	.722	.710	.444	.000
	*****		8.4%	9.9%	12.5%	16.6%	20.9%	26.2%	
S/DEPTH=.5	*****		.102	.290	.437	.536	.531	.335	.000
	*****		6.7%	7.3%	9.2%	12.3%	15.5%	19.6%	
S/DEPTH=.4	*****		.073	.209	.315	.389	.587	.246	.000
	*****		5.7%	4.7%	6.2%	8.5%	11.0%	14.3%	
S/DEPTH=.3	*****		.050	.144	.218	.270	.270	.172	.000
	*****		4.5%	2.4%	3.6%	5.4%	7.4%	10.1%	
S/DEPTH=.2	*****		.031	.090	.137	.170	.170	.109	.000
	*****		3.5%	2.4%	3.1%	4.6%	4.8%	3.1%	
S/DEPTH=.1	*****		.015	.043	.066	.082	.082	.053	.000
	*****		1.5%	1.5%	1.8%	2.1%	2.1%	1.4%	
S/DEPTH=.0	*****		.000	.000	.000	.000	.000	.000	.000

CASE 8=D

TABLE II=DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)												
THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0			
ETA/HEIGHT=	.677	.572	.456	.355	.177	.002	.37.8%	.37.8%	.37.8%	.37.8%	.37.8%	.37.8%
	28.1%	13.9%	2.19%	21.9%	81.2%	*****	*****	*****	*****	*****	*****	*****
SURFACE	.000	17.938	17.450	16.162	15.609	13.153	10.582	5.588	.000			
S/DEPTH=1.2	*****	67.8%	36.4%	3.5%	36.1%	66.5%	68.2%	52.8%	*****			
S/DEPTH=1.1	.000	8.397	13.311	15.284				5.506	.000			
S/DEPTH=1.0	*****	44.1%	30.6%	11.6%	13.152	10.478	9.415	55.1%	*****			
S/DEPTH= .9	.000	4.597	8.260	10.740	9.839	33.2%	51.3%	4.441	*****			
S/DEPTH= .8	*****	25.5%	18.3%	8.2%	12.3%	8.183	38.6%	54.1%	*****			
S/DEPTH= .7	.000	2.892	5.442	5.289	7.345	24.8%	5.995	3.601	*****			
S/DEPTH= .6	*****	13.6%	9.3%	3.4%	9.9%	17.7%	27.8%	39.8%	*****			
S/DEPTH= .5	.000	1.959	3.761	3.841	5.513	4.955	4.770	2.921	*****			
S/DEPTH= .4	*****	6.8%	4.4%	.5%	7.3%	11.2%	18.6%	27.4%	*****			
S/DEPTH= .3	.000	1.388	2.692	2.850	4.182	3.896	3.818	2.382	*****			
S/DEPTH= .2	*****	3.7%	1.980	.6%	4.1%	5.2%	10.4%	16.7%	*****			
S/DEPTH= .1	.000	3.3%	2.3%	2.162	3.222	3.117	3.099	1.966	*****			
S/DEPTH= .0	*****	.763	1.494	1.683	2.536	3.17	2.8%	7.8%	*****			
S/DEPTH= .4	.000	.590	1.158	1.82%	4.1%	2.562	2.579	1.659	*****			
S/DEPTH= .3	*****	.473	.929	1.355	2.058	6.2%	3.8%	1.449	*****			
S/DEPTH= .2	.000	.397	.781	1.141	1.745	11.0%	9.2%	6.9%	*****			
S/DEPTH= .1	.000	.354	.698	1.021	1.567	12.6%	9.2%	6.9%	*****			
S/DEPTH= .0	*****	.341	.671	1.021	1.567	14.3%	12.5%	11.327	*****			
S/DEPTH= .0	.000	.341	.671	1.021	1.567	15.5%	14.2%	12.5%	*****			
S/DEPTH= .0	*****	.341	.671	1.021	1.567	16.6%	14.2%	12.5%	*****			

TABLE IV. DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

[illegible]

CASE R=D

TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.677	.572	.456	.355	.177	.002	.140	.278	.323
	.26,1%	13.9%	2.9%	21.9%	81.2%	*****	37.8%	37.8%	54.7%
SURFACE	4.956	3.509	2.275	1.450	.477	.035	.040	.343	.509
S/DEPTH=1.2	7.7%	24.5%	66.7%	105.6%	172.5%	*****	*****	24.8%	13.0%
	13.4%								
S/DEPTH=1.1	2.089	1.977	1.688	1.312				.333	.333
	43.3%	46.8%	56.5%	71.0%				28.8%	20.6
S/DEPTH=1.0	1.159	1.109	.973	.781	.364			*****	42.7%
	38.8%	40.7%	46.0%	54.5%	82.8%			*****	21.1
S/DEPTH= .9	.667	.642	.571	.467	.228	.025	.029	*****	135
	30.4%	31.5%	34.6%	39.8%	*****	*****	*****	*****	087
S/DEPTH= .8	.395	.381	.341	.283	.143	.017	.016	*****	053
	20.3%	20.9%	22.9%	26.1%	*****	*****	*****	*****	057
S/DEPTH= .7	.240	.231	.208	.174	.090	.012	.009	*****	034
	*****	*****	*****	*****	*****	*****	*****	*****	036
S/DEPTH= .6	.149	.144	.130	.109	.057	.008	.005	*****	022
	*****	*****	*****	*****	*****	*****	*****	*****	010
S/DEPTH= .5	.094	.091	.082	.069	.037	.005	.003	*****	000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .4	.060	.058	.053	.044	.024	.004	.002	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .3	.038	.037	.033	.028	.015	.002	.001	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .2	.022	.022	.020	.017	.009	.001	.001	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .1	.010	.010	.009	.008	.004	.001	.000	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 8=D

TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA ETA/HEIGHT	0 26.1%	10.0 .572	20.0 .456	30.0 .355	50.0 .177	75.0 .002	100.0 .140	130.0 .278	180.0 .523
		13.9%	22.9%	21.9%	81.2%	*****	37.8%	37.8%	54.7%
SURFACE	.000	2.970	4.180	4.832	5.358	5.093	4.286	2.340	.000
	*****	38.1%	16.3%	1.9%	25.3%	36.0%	31.6%	15.9%	*****
S/DEPTH=1.2	.000								

S/DEPTH=1.1	.000	1.832	3.363	4.527					
	*****	19.3%	13.4%	5.9%					
S/DEPTH=1.0	.000	1.211	2.310	3.233	4.502				
	*****	11.2%	8.3%	4.1%	5.8%				
S/DEPTH=.9	.000	.846	1.637	2.334	3.360	3.923	3.756	2.304	
	*****	7.7%	6.0%	3.5%	3.1%	12.0%	20.0%	17.7%	
S/DEPTH=.8	.000	.607	1.184	1.704	2.507	2.984	2.912	1.809	
	*****	6.7%	5.7%	4.1%	3.3%	6.7%	12.7%	19.7%	
S/DEPTH=.7	.000	.442	.865	1.253	1.869	2.270	2.238	1.409	
	*****	7.4%	6.7%	5%	2.6%	2.0%	6.5%	11.9%	
S/DEPTH=.6	.000	.323	.634	.921	1.368	1.706	1.702	1.084	
	*****	8.9%	8.4%	7.2%	5.6%	2.3%	1.1%	5.3%	
S/DEPTH=.5	.000	.235	.462	.673	1.020	1.286	1.275	.820	
	*****	*****	10.5%	10%	8.5%	6.0%	3.4%	.1%	
S/DEPTH=.4	.000	.168	.330	.482	.734	.919	.931	.603	
	*****	*****	12.6%	12.3%	11.1%	9.2%	7.2%	4.6%	
S/DEPTH=.3	.000	.115	.226	.331	.506	.637	.649	.423	
	*****	*****	*****	14.2%	13.3%	11.8%	10.2%	8.0%	
S/DEPTH=.2	.000	.072	.142	.207	.317	.401	.410	.268	
	*****	*****	*****	*****	15.1%	13.8%	12.4%	10.4%	
S/DEPTH=.1	.000	.035	.068	.100	.153	.193	.198	.130	
	*****	*****	*****	*****	*****	*****	*****	*****	
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	
	*****	*****	*****	*****	*****	*****	*****	*****	

CASE 8=0

TABLE VIII=DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD,DEFINED IN EQUATION (28)

ETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.677	.572	.456	.355	.177	.002	.140	.278	.323
	26.1%	13.9%	2.9%	21.9%	81.2%	*****	37.8%	37.8%	54.7%
SURFACE	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.2	2.836	3.678	3.980	3.983	3.416	2.659	1.340	.000	*****
	44.4%	18.3%	4.8%	36.6%	51.9%	44.5%	19.4%	*****	*****
S/DEPTH=1.1	1.525	2.756	3.642	3.101	2.302	2.167	1.307	.000	*****
	22.0%	15.0%	5.9%	9.1%	18.0%	28.4%	22.4%	.000	*****
S/DEPTH=1.0	.869	1.646	2.379	3.101	1.511	1.448	.886	.000	*****
	12.1%	8.5%	3.3%	2.014	12.1%	20.0%	29.1%	.000	*****
S/DEPTH=.9	.521	1.005	1.422	1.286	.967	.942	.585	.000	*****
	7.1%	5.0%	1.8%	6.5%	6.8%	13.7%	19.7%	.000	*****
S/DEPTH=.8	.318	.618	.885	1.286	.600	.592	.373	.000	*****
	5.2%	3.9%	1.8%	3.9%	1.9%	6.2%	11.5%	.000	*****
S/DEPTH=.7	.193	.378	.535	.289	.357	.357	.227	.000	*****
	*****	4.4%	3.2%	5.7%	2.6%	.6%	4.6%	.000	*****
S/DEPTH=.6	.116	.227	.329	.160	.200	.201	.130	.000	*****
	*****	6.0%	5.1%	*****	*****	*****	*****	.000	*****
S/DEPTH=.5	.067	.132	.192	.080	.100	.102	.066	.000	*****
	*****	*****	*****	*****	*****	*****	*****	.000	*****
S/DEPTH=.4	.037	.072	.105	.033	.041	.042	.027	.000	*****
	*****	*****	*****	*****	*****	*****	*****	.000	*****
S/DEPTH=.3	.018	.036	.052	.015	.010	.010	.007	.000	*****
	*****	*****	*****	*****	*****	*****	*****	.000	*****
S/DEPTH=.2	.007	.015	.021	.008	.010	.010	.007	.000	*****
	*****	*****	*****	*****	*****	*****	*****	.000	*****
S/DEPTH=.1	.002	.003	.005	.000	.000	.000	.000	.000	*****
	*****	*****	*****	*****	*****	*****	*****	.000	*****
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	*****
	*****	*****	*****	*****	*****	*****	*****	.000	*****

CASE R=D

TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THEYA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION.... DEFINED IN EQ.(35)									
SURFACE	.000	1.196	1.470	1.267	.669	.184	-.083	-.163	-.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION.... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	-.000	-.000	-.000	.000	-.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION.... DEFINED IN EQ.(36)									
SURFACE	-.002	.004	.021	.045	.046	.119	.067	-.104	-.194
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION.... DEFINED IN EQ.(37)									
SURFACE	.012	-.003	-.002	-.003	-.001	-.001	.001	.001	.001

CASE 8=D

TABLE XI=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	1.194 (16.5%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.353 (41.5%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.397 (65.0%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.750 (53.9%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.491 (50.6%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.855 (2.2%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.789 (31.3%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.548 (16.1%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.057 (279.9%)

CASE 8=D

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.625231	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.102419	STREAM FUNCTION	.001932
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	1.470195	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.193618	STREAM FUNCTION	.012371
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.900456	STREAM FUNCTION	.872877
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.406734	STREAM FUNCTION	.286778

CASE 9-A

4TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/G.28318)^{.5} T^{.5}$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .042615 DPT/LO = .999996

H/DPT = .042615

L/LO = 1.017578 PSI/(G*H*T) = -.005255

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.331177=03 X(2)/(H*T*G) = -.808196=09

X(3)/(H*T*G) = -.404253=13 X(4)/(H*T*G) = -.237110=17

CASE 9=A

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD....DEFINED IN EQUATION (21)

THETA	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.534	.523	.494	.466	.310	.097	.116	.066
	6.3%	5.9%	4.8%	3.0%	3.7%	32.8%	24.9%	7.2%
SURFACE	3.561	3.498	3.310	3.010	2.151	.813	.526	.2,724
S/DEPTH#1.0	.7%	.6%	1.0%	1.4%	.2%	.3,5%	.1,2%	.9,3%
S/DEPTH# .9	3.094	3.046	2.906	2.676	1.982	.792	.491	.3,373
S/DEPTH# .8	1.55%	1.641	1.566	1.483	1.070	.429	.291	1.662
S/DEPTH# .7	1.667	.885	.844	.778	.577	.232	.156	.897
S/DEPTH# .6	.898	.4%	.4%	.4%	.311	.125	.084	.484
S/DEPTH# .5	.484	.477	.455	.419	.311	.25	.194	.1,281
S/DEPTH# .4	.261	.257	.246	.226	.168	.068	.045	.2,41
S/DEPTH# .3	2.4%	2.4%	2.4%	2.4%	.091	.037	.025	.108
S/DEPTH# .2	.141	.139	.133	.122	.091	.037	.025	.108
S/DEPTH# .1	.076	.075	.072	.066	.049	.020	.013	.076
S/DEPTH# .0	.042	.041	.039	.036	.027	.011	.007	.042
	.024	.024	.023	.021	.015	.006	.004	.024
	.015	.015	.014	.013	.010	.004	.003	.015
	.013	.013	.012	.011	.008	.003	.002	.013
	.013	.013	.012	.011	.008	.003	.002	.013

CASE 9=A

TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.534	.523	.494	.466	.310	.097	.116	.373	.466
	6.3%	5.9%	4.8%	3.0%	3.7%	32.8%	24.9%	2.6%	7.2%
SURFACE	.000	.619	1.208	1.744	2.574	3.062	2.946	1.792	.000
S/DEPTH=1.0	*****	.5%	.7%	1.0%	1.8%	2.5%	2.5%	1.6%	*****
	.000	.539	1.060	1.550	2.371	2.985			
S/DEPTH=.9	*****	1.2%	1.2%	1.3%	1.4%	1.6%	1.638	1.068	.000
	.000	.571	.571	.834	1.277	1.609	.7%	.9%	*****
S/DEPTH=.8	*****	.4%	.4%	.4%	.5%	.6%	.867	.576	.000
	.000	.156	.307	.449	.688	.867	.3%	.3%	*****
S/DEPTH=.7	*****	.5%	.5%	.5%	.5%	.4%	.3%	.311	.000
	.000	.084	1.5%	1.4%	.371	.468	.477	1.32%	*****
S/DEPTH=.6	*****	.045	.089	.131	1.4%	.252	.257	.168	.000
	.000	.024	.048	.070	.200	2.4%	2.4%	2.4%	*****
S/DEPTH=.5	*****	.024	.048	.070	1.08	.136	.138	.090	.000
	.000	.013	.026	.036	.058	.073	.074	.048	.000
S/DEPTH=.4	*****	.013	.026	.036	.058	.073	.074	.048	.000
	.000	.007	.014	.020	.031	.039	.039	.026	.000
S/DEPTH=.3	*****	.007	.014	.020	.031	.039	.039	.026	.000
	.000	.004	.007	.010	.015	.020	.020	.013	.000
S/DEPTH=.2	*****	.004	.007	.010	.015	.020	.020	.013	.000
	.000	.001	.003	.004	.006	.008	.008	.005	.000
S/DEPTH=.1	*****	.001	.003	.004	.006	.008	.008	.005	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.0	*****	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 9=A

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA ETA/HEIGHT=	10.0 0.534 6.3%	20.0 .494 4.8%	30.0 .446 3.0%	50.0 .310 3.7%	75.0 .097 32.8%	100.0 .116 24.9%	130.0 =373 22.6%	180.0 =466 7.2%
SURFACE	.000	7.632	11.006	16.220	19.255	18.487	11.225	.000
S/DEPTH=1.0	.000	.12%	.8%	.15%	.24%	.26%	.19%	.000
S/DEPTH= .9	.000	.693	9.776	14.942	16.767	.8%	6.697	.000
S/DEPTH= .8	.000	.7%	.9%	.11%	.15%	.552	3.618	.000
S/DEPTH= .7	.000	1.825	5.252	8.337	10.114	2.995	1.953	.000
S/DEPTH= .6	.000	.1%	.2%	.3%	.5%	1.4%	1.3%	.000
S/DEPTH= .5	.000	.982	1.934	2.827	4.328	1.616	1.054	.000
S/DEPTH= .4	.000	.6%	.6%	.5%	.4%	2.4%	2.3%	.000
S/DEPTH= .3	.000	.529	1.042	1.523	2.940	.873	.570	.000
S/DEPTH= .2	.000	.285	.562	1.821	1.586	.473	.309	.000
S/DEPTH= .1	.000	.154	.303	.443	.679	.260	.169	.000
S/DEPTH= .0	.000	.083	.164	.240	.368	.148	.097	.000
	.000	.046	.090	.132	.202	.095	.062	.000
	.000	.026	.051	.075	.115	.080	.052	.000
	.000	.017	.033	.048	.074	.080	.052	.000
	.000	.014	.028	.040	.062	.080	.052	.000

CASE 9=A

TABLE IV=DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD.....DEFINED IN EQUATION (24)

THETA = ETA/HEIGHT=	0 .534 6.3%	10.0 .523 5.9%	20.0 .494 4.8%	30.0 .446 3.0%	50.0 .310 3.7%	75.0 .097 32.8%	100.0 .116 24.9%	130.0 .373 26.6%	180.0 .466 27.2%
SURFACE	.19,095	.18,707	.17,569	.15,751	.10,535	.2,420	5,699	15,499	19,033
S/DEPTH=1.0	.0%	.1%	.3%	.7%	.14%	-1.6%	-2.8%	-1.8%	-1.2%
	.16,963	.16,662	.15,771	.14,717	.9,927	-2,427			
S/DEPTH= .9	.7%	.7%	.8%	.9%	.11%	-1.7%			
	.9,753	.9,593	.9,116	.8,339	.5,986	-1,924	2,569	8,733	11,159
S/DEPTH= .8	.2%	.2%	.3%	.3%	.5%	-1.0%	.4%	.9%	.1%
	.5,435	.5,349	.5,093	.4,676	.3,411	-1,241	1,196	4,531	5,844
S/DEPTH= .7	.6%	.5%	.5%	.5%	.4%	.0%	.7%	.3%	.2%
	.2,982	.2,935	.2,798	.2,573	.1,893	.724	.592	2,391	3,101
S/DEPTH= .6	1.5%	1.5%	1.4%	1.4%	1.4%	*****	*****	1.4%	1.3%
	.1,622	.1,597	.1,523	.1,402	.1,036	-406	.303	1,274	1,657
S/DEPTH= .5	2.4%	2.4%	2.4%	2.4%	2.4%	*****	*****	2.4%	2.4%
	.878	.864	.825	.759	.562	*****	.159	.682	.888
S/DEPTH= .4	.472	.465	.444	.409	.303	*****	.084	.364	.475
S/DEPTH= .3	.251	.247	.235	.217	.161	*****	*****	*****	*****
S/DEPTH= .2	.127	.125	.119	.110	.082	*****	.022	.097	.127
S/DEPTH= .1	.053	.052	.050	.046	.034	*****	.009	.041	.053
S/DEPTH= .0	.000	.000	.000	.000	.000	*****	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.534	.523	.494	.446	.310	.097	.116	.373	.466
	6.3%	5.9%	4.8%	3.0%	3.7%	32.8%	24.9%	2.6%	7.2%
SURFACE	1.025	.989	.886	.733	.375	.054	.022	.372	.602
S/DEPTH=1.0	.12%	.3%	.8%	-1.4%	-2.9%	-4.9%	*****	-1.1%	.0%
	.774	.750	.683	.580	.7318	.051	*****	*****	*****
S/DEPTH= .9	.16%	.16%	.17%	-1.7%	-2.0%	*****	*****	*****	*****
	.225	.218	.198	.168	.093	.015	.007	.132	.224
S/DEPTH= .8	.3%	.3%	.3%	.3%	.1%	*****	*****	.1%	.0%
	.065	.063	.058	.049	.027	.004	.002	.038	.065
S/DEPTH= .7	.23%	.2%	.23%	*****	*****	*****	*****	*****	.2%
	.019	.018	.017	.014	.008	.001	.001	.011	.019
S/DEPTH= .6	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.006	.005	.005	.004	.002	.000	.000	.003	.006
S/DEPTH= .5	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.002	.002	.001	.001	.001	.000	.000	.001	.002
S/DEPTH= .4	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.001	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .3	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .2	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .1	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .0	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000

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TABLE V-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA =	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.534	.494	.446	.310	.097	.373	.466
	6.3%	4.8%	3.0%	3.7%	24.9%	2.6%	7.2%
SURFACE	.629	1.229	1.774	2.619	3.116	2.997	1.824
S/DEPTH=1.0	1.0%	.8%	.5%	.2%	.9%	.0%	*****
S/DEPTH=.9	1.0%	1.079	1.577	2.413	3.037	1.667	1.087
S/DEPTH=.8	1.0%	.3%	.3%	.2%	.0%	.8%	.7%
S/DEPTH=.7	1.0%	.581	.849	1.300	1.637	1.587	1.000
S/DEPTH=.6	1.0%	1.1%	1.1%	1.1%	1.0%	1.9%	1.587
S/DEPTH=.5	1.0%	.313	.457	.700	.883	.899	.587
S/DEPTH=.4	1.0%	2.0%	2.0%	2.0%	1.9%	1.9%	1.587
S/DEPTH=.3	1.0%	.169	.246	.377	.476	.485	.516
S/DEPTH=.2	1.0%	3.0%	3.0%	3.0%	2.9%	2.9%	2.9%
S/DEPTH=.1	1.0%	.091	.133	.203	.256	.261	.171
S/DEPTH=.0	1.0%	*****	*****	3.9%	3.9%	3.9%	*****
S/DEPTH=.5	1.0%	.049	.071	.110	.138	.141	.092
S/DEPTH=.4	1.0%	*****	*****	*****	*****	*****	*****
S/DEPTH=.3	1.0%	.013	.038	.059	.074	.076	.049
S/DEPTH=.2	1.0%	*****	*****	*****	*****	*****	*****
S/DEPTH=.1	1.0%	.007	.020	.031	.039	.040	.026
S/DEPTH=.0	1.0%	*****	*****	*****	*****	*****	*****
S/DEPTH=.5	1.0%	.004	.010	.016	.020	.020	.013
S/DEPTH=.4	1.0%	*****	*****	*****	*****	*****	*****
S/DEPTH=.3	1.0%	.001	.004	.007	.008	.008	.006
S/DEPTH=.2	1.0%	*****	*****	*****	*****	*****	*****
S/DEPTH=.1	1.0%	.000	.000	.000	.000	.000	.000
S/DEPTH=.0	1.0%	*****	*****	*****	*****	*****	*****

TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

438

TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

439

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TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.534	.523	.494	.446	.310	.097	.116	.373	.466
	6.3%	5.9%	4.8%	3.0%	3.7%	32.8%	24.9%	2.6%	7.2%
SURFACE	1.047	1.047	.988	.893	.620	.195	.231	.747	.933
S/DEPTH=1.0	1.0%	.9%	.7%	.4%	.3%	1.2%	.5%	.3%	.9%
S/DEPTH= .9	.937	.922	.876	.802	.577	.192	.231	.747	.933
S/DEPTH= .8	.851	.813	.748	.648	.427	.120	.113	.432	.557
S/DEPTH= .7	.785	.721	.628	.526	.318	.069	.056	.228	.296
S/DEPTH= .6	.715	.623	.516	.414	.209	.039	.029	.122	.159
S/DEPTH= .5	.645	.545	.437	.335	.177	.021	.015	.066	.085
S/DEPTH= .4	.575	.475	.367	.265	.117	.011	.008	.035	.046
S/DEPTH= .3	.505	.405	.297	.195	.067	.006	.005	.019	.025
S/DEPTH= .2	.435	.335	.227	.125	.037	.003	.003	.011	.014
S/DEPTH= .1	.365	.265	.157	.055	.005	.002	.002	.006	.008
S/DEPTH= .0	.295	.195	.087	.004	.003	.001	.001	.004	.005
	.225	.125	.017	.003	.002	.001	.001	.003	.004

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TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.008	.015	.019	.021	.009	.006	.015	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.028	.026	.020	.012	.010	.031	.029	.011	.038
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 9-A

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	1.018 (1.6%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.496 (-.9%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.502 (-.1.9%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.998 (-.1.4%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.509 (-.1.1%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.510 (-.3%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	1.000 (-.3%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.513 (1.0%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.004 (.23%.7%)

CASE 9=A

TABLE XI(CONT)-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.013164	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.023644	STREAM FUNCTION	.000029
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.021161	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.037525	STREAM FUNCTION	.000093
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.152756	STRFAM FUNCTION	.149151
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.130687	STRFAM FUNCTION	.129512

CASE 9-B

4TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2 * 2$
 H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .085197 DPT/LO = .999996
 H/DPT = .085197 PSI/(G*H*T) = -.009933
 L/LO = 1.065234

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.433331E+03 X(2)/(H*T*G) = -.100012E+07
 X(3)/(H*T*G) = -.160018E+11 X(4)/(H*T*G) = -.331298E+15

CASE 9=B

TABLE 1=DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.569	.554	.513	.450	.286	.062	.137	.356	.431
	12.1%	11.2%	8.4%	3.8%	12.5%	108.7%	36.7%	7.5%	16.0%
SURFACE	3.994	3.898	3.627	3.216	2.154	.733	.513	1.867	2.327
S/DEPTH=1.0	2.7%	3.2%	4.5%	6.5%	11.2%	18.6%	1.5%	4.9%	3.1%
S/DEPTH=.9	2.980	2.932	2.790	2.559	1.868	.712	.513	1.240	1.608
S/DEPTH=.8	5.3%	5.4%	5.7%	6.2%	8.0%	14.1%	.296	3.5%	4.2%
S/DEPTH=.7	1.638	1.613	1.537	1.413	1.040	.406	1.6%	1.240	1.608
S/DEPTH=.6	2.3%	2.3%	2.5%	2.7%	3.6%	6.7%	.161	3.5%	4.2%
S/DEPTH=.5	2.804	2.800	2.809	.781	.577	.229	.088	1.1%	1.895
S/DEPTH=.4	1.1%	1.1%	1.0%	.9%	.4%	.12%	.027	.5%	1.1%
S/DEPTH=.3	4.5%	4.6%	4.5%	4.4%	4.2%	.128	.048	3.82	4.97
S/DEPTH=.2	4.3%	4.2%	4.1%	4.0%	3.9%	.071	.027	4.2%	4.0%
S/DEPTH=.1	2.60	2.73	2.60	2.40	.178	.040	.015	7.81	7.7%
S/DEPTH=.0	8.0%	8.0%	8.0%	7.9%	.099	.040	.005	1.18	1.18
	.154	.152	.115	.133	.099	.040	.027	.118	.154
	.086	.084	.081	.074	.055	.022	.015	.066	.086
	.049	.048	.046	.042	.031	.013	.008	.037	.048
	.029	.028	.027	.025	.018	.007	.005	.022	.029
	.019	.019	.018	.016	.012	.005	.003	.015	.019
	.016	.016	.015	.014	.010	.004	.003	.012	.016
	.016	.016	.015	.014	.010	.004	.003	.012	.016

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TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	12.1%	11.2%	8.4%	5.1%	2.8%	1.2%	0.6%	0.3%	0.1%
SURFACE	.000	.077	1.358	1.911	2.656	2.939	2.673	1.541	.000
S/DEPTH#1.0	*****	.4%	1.7%	3.5%	7.5%	10.6%	10.4%	6.1%	*****
S/DEPTH# .9	*****	.527	1.037	1.511	2.292	2.848			
S/DEPTH# .8	*****	.287	.565	.825	1.258	1.574	1.592	1.029	.000
S/DEPTH# .7	*****	.158	.311	.454	.694	.871	.884	.474	.000
S/DEPTH# .6	*****	.087	.171	.251	.383	.482	.421	.212	.000
S/DEPTH# .5	*****	.048	.095	.139	.212	.267	.272	.177	.000
S/DEPTH# .4	*****	.027	.052	.077	.117	.148	.151	.098	.000
S/DEPTH# .3	*****	.015	.029	.042	.065	.081	.083	.054	.000
S/DEPTH# .2	*****	.008	.016	.023	.035	.044	.045	.029	.000
S/DEPTH# .1	*****	.002	.003	.005	.008	.010	.010	.006	.000
S/DEPTH# .0	*****	.000	.000	.000	.000	.000	.000	.000	.000

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

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TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.569	.554	.513	.450	.286	.062	.137	.336	.431
	12.1%	11.2%	8.4%	3.8%	-12.5%	-108.7%	36.7%	-7.5%	-16.0%
SURFACE									
S/DEPTH=1.0	.17.555	.17.028	.15.529	.13.264	.07.433	.0335	7.151	10.597	17.129
	4.5%	4.0%	2.7%	.8%	-2.6%	*****	-12.9%	-8.3%	-6.1%
S/DEPTH=.9	.14.546	.14.221	.13.263	.11.720	.07.192	.0167			
	.6%	.5%	.0%	.8%	-3.0%	*****			
S/DEPTH=.8	.09.036	.08.869	.08.372	.07.567	.05.160	-1.134	3.256	9.065	11.305
	.1%	.0%	.2%	.6%	-2.0%	-7.9%	-2.3%	-5.5%	-6.4%
S/DEPTH=.7	.05.210	.05.210	.04.944	.04.511	.03.210	-1.002	1.440	4.720	5.996
	2.0%	2.0%	1.9%	1.6%	.8%	-2.4%	2.6%	.3%	.8%
S/DEPTH=.6	.03.025	.02.976	.02.832	.02.596	.01.885	-0.70	.685	2.521	3.239
	4.9%	4.9%	4.8%	4.6%	4.2%	*****	*****	4.0%	3.6%
S/DEPTH=.5	.01.703	.01.676	.01.597	.01.467	.01.076	-.406	.345	1.367	1.769
	8.1%	8.0%	8.0%	7.9%	7.6%	*****	*****	7.8%	7.6%
S/DEPTH=.4	.00.950	.00.936	.00.892	.00.821	.00.605	.00.235	.180	.747	.971
	11.3%	11.3%	11.2%	*****	*****	*****	*****	*****	11.1%
S/DEPTH=.3	.00.526	.00.518	.00.494	.00.455	.00.336	-.133	.096	.409	.532
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.2	.00.287	.00.282	.00.269	.00.248	.00.184	.00.073	.051	.221	.288
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.1	.00.148	.00.146	.00.139	.00.128	.00.095	-.038	.026	.114	.149
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	.00.063	.00.062	.00.059	.00.054	.00.040	.00.016	.011	.048	.063
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	.00.000	.00.000	.00.000	.00.000	.00.000	.00.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 9=B

TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA	0.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	12.1%	11.2%	8.4%	3.8%	12.5%	108.7%	36.7%	7.5%	16.0%
SURFACE	1.329	1.267	1.101	.870	.396	.048	.021	.296	.463
S/DEPTH=1.0	1.0%	1.9%	4.2%	7.7%	15.7%	33.3%	50.0%	73.3%	95%
S/DEPTH=.9	.744	.720	.653	.552	.298	.045	.007	.131	.221
S/DEPTH=.8	.226	.219	.199	.169	.092	.014	.002	.040	.068
S/DEPTH=.7	.0%	.9%	.17%	.4%	.8%	.004	.001	.012	.021
S/DEPTH=.6	.069	.067	.061	.052	.028	.004	.001	.004	.007
S/DEPTH=.5	.7%	7.6%	.021	.016	.009	.001	.000	.001	.002
S/DEPTH=.4	.007	.006	.006	.005	.003	.000	.000	.000	.001
S/DEPTH=.3	.002	.002	.002	.002	.001	.000	.000	.001	.002
S/DEPTH=.2	.001	.001	.001	.000	.000	.000	.000	.000	.001
S/DEPTH=.1	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 9=B

TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	12.1%	.559	.513	.450	.286	.062	.137	.356	.431
			8.4%	3.8%	-12.5%	-108.7%	36.7%	7.5%	-16.0%
SURFACE	.000	.750	1.442	2.030	2.823	3.126	2.844	1.640	.000
S/DEPTH=1.0	*****	5.3%	4.1%	2.4%	-1.3%	-4.1%	-4.0%	-.4%	*****
S/DEPTH= .9	*****	.561	1.103	1.606	2.138	3.030			*****
S/DEPTH= .8	*****	2.7%	2.5%	2.1%	1.2%	1.3%			*****
S/DEPTH= .7	*****	.306	.602	.878	1.340	1.676	1.695	1.095	.000
S/DEPTH= .6	*****	4.7%	4.6%	4.5%	4.0%	3.3%	2.5%	1.5%	*****
S/DEPTH= .5	*****	.000	.331	.483	.739	.928	.942	.611	.000
S/DEPTH= .4	*****	7.5%	7.4%	7.3%	7.1%	6.7%	6.3%	5.8%	*****
S/DEPTH= .3	*****	.093	.183	.267	.408	.514	.523	.340	.000
S/DEPTH= .2	*****	*****	10.4%	10.4%	10.3%	10.1%	9.9%	9.6%	*****
S/DEPTH= .1	*****	.051	.101	.148	.226	.284	.290	.189	.000
S/DEPTH= .0	*****	*****	*****	*****	13.5%	13.4%	13.2%	13.1%	*****
	*****	.028	.056	.082	.125	.157	.160	.105	.000
	*****	*****	*****	*****	*****	16.5%	16.4%	*****	*****
	*****	.016	.031	.045	.069	.087	.088	.058	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
	*****	.008	.017	.024	.037	.047	.048	.031	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
	*****	.004	.009	.013	.019	.024	.025	.016	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
	*****	.002	.004	.005	.008	.010	.011	.007	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
	*****	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 9=B

TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA =	0	10.0	20.0	30.0	40.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	12.1%	11.2%	8.4%	5.1%	3.8%	2.86	108.7%	56.7%	7.5%	16.0%
SURFACE	1.282	1.221	1.056	.830	.372	.044				
S/DEPTH=1.0	.8%	.18%	.43%	.81%	.168%	*****			.262	.406
	.681	.660	.598	.505	.272	.041			.3%	.5%
S/DEPTH=.9	.184	.179	.162	.137	.075	*****				
	.3%	.3%	.1%	.3%	.14%	.012			.106	.180
S/DEPTH=.8	.049	.048	.044	.037	.020	.003			.15%	.25%
	*****	*****	*****	*****	*****	*****			*****	*****
S/DEPTH=.7	.013	.013	.012	.010	.005	.001			.029	.049
	*****	*****	*****	*****	*****	*****			*****	*****
S/DEPTH=.6	.003	.003	.003	.003	.001	.000			.008	.013
	*****	*****	*****	*****	*****	*****			*****	*****
S/DEPTH=.5	.001	.001	.001	.001	.000	.000			.002	.003
	*****	*****	*****	*****	*****	*****			*****	*****
S/DEPTH=.4	.000	.000	.000	.000	.000	.000			.000	.000
	*****	*****	*****	*****	*****	*****			*****	*****
S/DEPTH=.3	.000	.000	.000	.000	.000	.000			.000	.000
	*****	*****	*****	*****	*****	*****			*****	*****
S/DEPTH=.2	.000	.000	.000	.000	.000	.000			.000	.000
	*****	*****	*****	*****	*****	*****			*****	*****
S/DEPTH=.1	.000	.000	.000	.000	.000	.000			.000	.000
	*****	*****	*****	*****	*****	*****			*****	*****
S/DEPTH=.0	.000	.000	.000	.000	.000	.000			.000	.000
	*****	*****	*****	*****	*****	*****			*****	*****

CASE 9-B

TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
FLA/HEIGHT=	0.569	11.2%	8.4%	3.8%	12.5%	-108.7%	36.7%	-7.5%	-16.0%
SURFACE	.000	.662	1.267	1.772	2.421	2.617	2.329	1.311	.000
S/DEPTH=1.0	*****	5.2%	3.8%	1.8%	-2.6%	6.0%	-5.8%	-1.6%	*****
	*****	.468	1.920	1.340	2.031	2.520			
S/DEPTH=.9	*****	1.8%	1.6%	1.3%	.2%	-1.4%			
	*****	.224	.442	.644	.982	1.228	1.241	.801	.000
S/DEPTH=.8	*****	3.7%	3.6%	3.4%	2.9%	2.0%	1.2%	.0%	.000
	*****	.107	.210	.307	.468	.588	.596	.367	.000
S/DEPTH=.7	*****	.050	.62%	6.1%	5.8%	5.4%	4.9%	4.3%	.000
	*****	.098	.098	.143	.219	.275	.280	.162	.000
S/DEPTH=.6	*****	.023	.044	.065	.099	.125	.64%	8.0%	.000
	*****	.010	.019	.028	.043	.055	.056	.083	.000
S/DEPTH=.5	*****	.004	.004	.012	.018	.023	.023	.015	.000
	*****	.002	.003	.004	.007	.008	.009	.006	.000
S/DEPTH=.4	*****	.000	.001	.001	.002	.003	.003	.002	.000
	*****	.000	.000	.000	.000	.001	.001	.000	.000
S/DEPTH=.3	*****	.000	.000	.000	.000	.000	.000	.000	.000
	*****	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.2	*****	.000	.000	.000	.000	.000	.000	.000	.000
	*****	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.1	*****	.000	.000	.000	.000	.000	.000	.000	.000
	*****	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.0	*****	.000	.000	.000	.000	.000	.000	.000	.000

CASE 90B

TABLE IX=DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD....DEFINED IN EQUATION (29)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	12.1%	.569	.554	.513	.450	.286	.137	.356	.431
		11.2%	8.4%	8.4%	3.8%	-12.5%	108.7%	36.7%	16.0%
SURFACE	1.138	1.109	1.026	.901	.572	.124	.274	.713	.862
S/DEPTH=1.0	4.5%	4.1%	3.0%	1.4%	2.0%	6.7%	1.7%	1.2%	3.2%
S/DEPTH= .9	.890	.874	.826	.748	.515	.124			
S/DEPTH= .8	1.7%	1.6%	1.4%	.9%	.5%	7.4%			
S/DEPTH= .7	.519	.510	.489	.443	.316	.102	.136	.456	.580
S/DEPTH= .6	2.9%	2.8%	2.6%	2.3%	.9%	6.6%	10.0%	3.8%	2.9%
S/DEPTH= .5	4.4%	4.3%	4.1%	3.7%	2.1%	7.3%	20.7%	9.7%	8.6%
S/DEPTH= .4	.295	.291	.277	.254	.185	.066	.065	.244	.314
S/DEPTH= .3	.166	.164	.156	.143	.105	.040	.033	.133	.172
S/DEPTH= .2	5.2%	5.1%	4.8%	4.3%	1.9%	.023	.018	16.4%	14.7%
S/DEPTH= .1	.093	.091	.087	.080	.059	.023	.010	.073	.095
S/DEPTH= .0	4.4%	4.2%	3.7%	2.9%	1.0%	.013	.010	25.1%	22.3%
	.052	.051	.049	.045	.033	.013	.010	.040	.053
	.029	.028	.027	.025	.018	.007	.005	.022	.029
	.016	.016	.015	.014	.010	.004	.003	.013	.017
	.010	.009	.009	.008	.006	.002	.002	.008	.010
	.006	.006	.006	.005	.004	.002	.001	.005	.007
	.005	.005	.005	.005	.003	.001	.001	.004	.006
	.005	.005	.005	.005	.003	.001	.001	.004	.006

CASE 908

TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN E0.(35)									
SURFACE	.000	.045	.082	.104	.100	.040	.023	.052	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN E0.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN E0.(36)									
SURFACE	.043	.039	.028	.011	.030	.063	.053	.031	.082
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN E0.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 9-B

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	1.065 (6.0%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.480 (4.1%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.499 (8.2%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.979 (6.2%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.528 (5.2%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.539 (.9%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.992 (1.8%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.544 (2.8%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.016 (269.9%)

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TABLE XI(CONT)•OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.060271	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.047483	STREAM FUNCTION	.000022
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.109577	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.082394	STREAM FUNCTION	.000059
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.349061	STREAM FUNCTION	.319402
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.246508	STREAM FUNCTION	.238033

CASE 9=C

3TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO=(G/6.28318)*T**2$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .128025 DPT/LO = .999996

H/DPT = .128025

L/LO = 1.132813 PSI/(G*H*T) = -.013501

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.596822E+03 X(2)/(H*T*G) = -.581606E+07

X(3)/(H*T*G) = -.289623E+10

CASE 9-C

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.609	.585	.522	.436	.245	.026	.149	.330	.391
	17.9%	15.9%	9.9%	.6%	31.1%	*****	41.6%	15.9%	27.9%
SURFACE	4.518	4.342	3.881	3.269	1.969	.564	.509	1.594	1.954
S/DEPTH=1.0	3.6%	5.7%	10.9%	17.7%	32.6%	59.8%	.1%	10.9%	7.4%
	2.825	2.773	2.620	2.375	1.668	.557			
S/DEPTH= .9	11.1%	11.5%	12.6%	14.4%	20.9%	45.9%			
	1.560	1.475	1.475	1.348	.972	.355	.305	1.163	1.492
S/DEPTH= .8	6.1%	6.2%	6.8%	7.6%	10.8%	22.2%	4.5%	10.4%	12.3%
	.095	.880	.838	.769	.562	.214	.166	.071	.086
S/DEPTH= .7	.0%	.0%	.3%	.8%	2.3%	*****	*****	2.2%	3.3%
	.510	.502	.478	.440	.324	.126	.092	.0586	.500
S/DEPTH= .6	6.4%	6.3%	6.2%	6.0%	5.0%	*****	*****	5.2%	4.6%
	.592	.587	.574	.552	.486	.074	.052	.0222	.0289
S/DEPTH= .5	12.7%	12.6%	12.6%	12.4%	*****	*****	*****	*****	11.7%
	.168	.165	.157	.145	.107	.043	.030	.0128	.167
S/DEPTH= .4	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.097	.095	.091	.084	.062	.025	.017	.0074	.0097
S/DEPTH= .3	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.057	.056	.053	.049	.037	.015	.010	.0044	.0057
S/DEPTH= .2	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.035	.034	.033	.030	.022	.009	.006	.0027	.0035
S/DEPTH= .1	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.024	.024	.023	.021	.015	.006	.004	.0018	.0024
S/DEPTH= .0	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.021	.020	.020	.018	.013	.005	.004	.0016	.0021
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 9=C

TABLE II-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA ETA/HEIGHT=	0 .609 17.9%	10.0 15.9%	20.0 5.22 9.9%	30.0 4.36 .6%	50.0 .245 31.1%	75.0 .026 *****	100.0 1.149 41.6%	130.0 1.330 15.9%	180.0 1.391 27.9%
SURFACE	.000	.850	1.567	2.095	2.638	2.674	2.309	1.284	.000
S/DEPTH=1.0	***** .000	4.8%	.1%	6.1%	18.0%	25.8%	24.8%	15.5%	***** .000
S/DEPTH= .9	***** .000	.521	1.019	1.474	2.186	2.624			***** .000
S/DEPTH= .8	***** .000	4.6%	5.3%	6.5%	10.0%	15.6%			***** .000
S/DEPTH= .7	***** .000	.283	.556	.808	1.218	1.897	1.088	.945	***** .000
S/DEPTH= .6	***** .000	2.7%	3.1%	3.6%	5.3%	8.1%	10.9%	14.0%	***** .000
S/DEPTH= .5	***** .000	1.58	1.31	1.453	.688	.856	2.4%	4.2%	***** .000
S/DEPTH= .4	***** .000	1.7%	1.6%	1.3%	.4%	.9%	2.4%	4.1%	***** .000
S/DEPTH= .3	***** .000	.089	.176	.257	.391	.490	5.1%	4.1%	***** .000
S/DEPTH= .2	***** .000	***** .051	7.2%	7.0%	6.6%	5.9%	5.1%	4.1%	***** .000
S/DEPTH= .1	***** .000	.029	.100	.146	.223	.280	11.9%	11.3%	***** .000
S/DEPTH= .0	***** .000	***** .029	***** .057	12.9%	12.7%	12.3%	11.9%	11.3%	***** .000
	***** .000	***** .016	***** .032	***** .047	***** .073	***** .091	***** .093	***** .061	***** .000
	***** .000	***** .009	***** .018	***** .027	***** .041	***** .051	***** .052	***** .034	***** .000
	***** .000	***** .005	***** .010	***** .014	***** .022	***** .027	***** .028	***** .018	***** .000
	***** .000	***** .002	***** .004	***** .006	***** .009	***** .012	***** .012	***** .008	***** .000
	***** .000	***** .000	***** .000	***** .000	***** .000	***** .000	***** .000	***** .000	***** .000
	***** .000	***** .000	***** .000	***** .000	***** .000	***** .000	***** .000	***** .000	***** .000

CASE 90C

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA ETA/HEIGHT =	10.0 0	20.0 0	30.0 0	50.0 0	75.0 0	100.0 0	130.0 0	180.0 0
	.609 17.9%	.585 15.9%	.522 9.9%	.436 6%	.245 31.1%	.026 41.6%	.330 15.9%	.591 27.9%
SURFACE	.000	6.228	11.279	14.705	17.490	16.684	13.915	7.647
S/DEPTH=1.0	.000	18.3%	12.8%	5.0%	-11.8%	-26.7%	30.2%	21.9%
S/DEPTH=.9	.000	3.644	7.072	10.095	14.030	16.383		
	.000	6.0%	4.6%	2.3%	4.7%	-16.3%		
S/DEPTH=.8	.000	1.893	3.701	5.546	7.911	9.452	9.162	5.698
	.000	3.4%	2.7%	1.5%	-1.9%	7.6%	13.1%	18.7%
S/DEPTH=.7	.000	1.028	2.018	2.932	4.012	5.406	5.355	3.382
	.000	5.1%	4.7%	4.2%	2.4%	4.4%	3.3%	6.8%
S/DEPTH=.6	.000	.573	1.126	1.641	2.490	3.091	3.100	1.983
	.000	.89%	8.9%	8.6%	7.7%	6.3%	4.7%	2.7%
S/DEPTH=.5	.000	.324	.637	.930	1.417	1.771	1.769	1.154
	.000	.185	.363	.531	13.0%	12.6%	11.8%	10.7%
S/DEPTH=.4	.000	.106	.209	.306	.468	.588	1.032	.669
	.000	.062	.123	.179	.274	.345	18.7%	18.3%
S/DEPTH=.3	.000	.038	.075	.110	.168	.212	.598	.389
	.000	.026	.052	.076	.116	.146	.352	.229
S/DEPTH=.2	.000	.023	.045	.065	.100	.126	.216	.141
	.000	.023	.045	.065	.100	.126	.216	.141
S/DEPTH=.1	.000	.023	.045	.065	.100	.126	.216	.141
	.000	.023	.045	.065	.100	.126	.216	.141
S/DEPTH=.0	.000	.023	.045	.065	.100	.126	.216	.141
	.000	.023	.045	.065	.100	.126	.216	.141

CASE 9=C

TABLE 14=DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

THETA ETA/HEIGHT	0 609 17.9%	10.0 585 15.9%	20.0 522 9.9%	30.0 436 6%	50.0 245 31.1%	75.0 1026 *****	100.0 41.6%	130.0 5330 15.9%	180.0 391 27.9%
SURFACE	15.439	14.675	12.624	9.815	3.727	2.746	7.602	12.737	14.576
S/DEPTH=1.0	23.6%	22.5%	19.3%	15.4%	15.7%	48.7%	32.6%	20.8%	14.8%
S/DEPTH=.9	12.870	12.473	11.319	9.508	4.526	2.559	8.766	17.42	10.702
S/DEPTH=.8	8.3%	7.8%	6.2%	3.6%	5.2%	9.9%	8.4%	19.4%	19.4%
S/DEPTH=.7	8.430	8.242	7.689	6.804	4.252	2.261	2.7%	4.720	5.883
S/DEPTH=.6	1.9%	1.6%	.7%	.8%	6.1%	*****	1.664	4.8%	6.4%
S/DEPTH=.5	5.144	5.047	4.762	4.300	2.938	1.705	2.7%	2.594	3.590
S/DEPTH=.4	3.3%	3.1%	2.6%	1.8%	1.1%	*****	10.4%	4.4%	3.2%
S/DEPTH=.3	3.048	2.996	2.841	2.591	1.841	1.584	3.94	1.449	1.859
S/DEPTH=.2	7.6%	7.5%	7.3%	6.8%	5.2%	3.93	*****	11.8%	11.1%
S/DEPTH=.1	1.779	1.750	1.665	1.525	1.105	*****	2.207	18.2%	17.7%
S/DEPTH=.0	13.0%	12.9%	12.8%	12.5%	11.6%	2.244	*****	11.2	5.98
	18.5%	18.5%	18.4%	18.3%	18.2%	1.145	*****	334	334
	5.599	5.580	5.553	5.509	5.375	1.083	*****	136	177
	0.331	0.326	0.311	0.286	0.212	0.045	*****	0.059	0.076
	0.176	0.173	0.165	0.152	0.113	0.019	*****	0.000	0.000
	0.076	0.075	0.072	0.066	0.049	0.000	*****	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	*****	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.000	*****	0.000	0.000

CASE 9=C

TABLE V=DIMENSIONLESS DRAG FORCE COMPONENT FIELD.....DEFINED IN EQUATION (25)

THETA ETA/HEIGHT=	0 17.9%	10.0 .509	20.0 .522	30.0 .436	50.0 .245	75.0 .026	100.0 41.6%	130.0 -15.0%	180.0 -27.9%
SURFACE	1.720	1.597	1.296	.940	.360	.034	-.021	-.232	-.342
S/DEPTH=1.0	.2.1%	.5.3%	.14.0%	.25.9%	.51.1%	.033	.033	.7.7%	.1%
S/DEPTH=.9	.13.8%	.14.3%	.15.7%	.18.1%	.26.5%	.033	.033	.123	.204
S/DEPTH=.8	.1.7%	.1.9%	.2.6%	.3.6%	.7.5%	.012	.008	.7.1%	.9.8%
S/DEPTH=.7	.023	.023	.021	.017	.010	.001	.001	.041	.086
S/DEPTH=.6	.008	.008	.007	.006	.003	.001	.000	.005	.008
S/DEPTH=.5	.003	.003	.002	.002	.001	.000	.000	.002	.003
S/DEPTH=.4	.001	.001	.001	.001	.000	.000	.000	.001	.001
S/DEPTH=.3	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.2	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.1	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 9=C

TABLE VI=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA ETA/HEIGHT=	0 17.9%	10.0 609	20.0 522	30.0 436	50.0 245	75.0 026	100.0 41.6%	130.0 330	180.0 391
ETA/HEIGHT=	17.9%	15.9%	9.9%	.6%	-31.1%	*****	*****	-15.9%	-27.9%
SURFACE	.000	.946	1.747	2.340	2.960	3.011	2.606	1.452	.000
S/DEPTH=1.0	*****	14.3%	10.2%	4.9%	-5.0%	-11.9%	-10.8%	-2.4%	*****
S/DEPTH= .9	*****	.586	1.147	1.658	2.460	2.955	1.683	1.069	.000
S/DEPTH= .8	*****	6.9%	6.2%	5.2%	2.1%	-2.8%	1.8%	.9%	.000
S/DEPTH= .7	*****	.320	8.7%	9.14	1.377	1.693	9.4%	7.8%	.000
S/DEPTH= .6	*****	9.0%	12.9%	8.0%	6.7%	4.2%	1.8%	.625	.000
S/DEPTH= .5	*****	.179	.352	.513	.779	.989	.974	.362	.000
S/DEPTH= .4	*****	13.0%	17.9%	12.6%	11.9%	10.7%	16.0%	15.2%	.000
S/DEPTH= .3	*****	.101	.199	.291	.443	.555	.322	.209	.000
S/DEPTH= .2	*****	.058	.113	.166	.253	.318	.22.1%	.120	.000
S/DEPTH= .1	*****	.033	.065	.094	.144	.182	.185	.069	.000
S/DEPTH= .0	*****	.019	.037	.054	.082	.103	.105	.039	.000
S/DEPTH= .3	*****	.010	.021	.030	.046	.058	.059	.039	.000
S/DEPTH= .2	*****	.006	.011	.016	.024	.031	.031	.020	.000
S/DEPTH= .1	*****	.002	.005	.007	.011	.013	.014	.009	.000
S/DEPTH= .0	*****	.000	.000	.000	.000	.000	.000	.000	.000

TABLE VI. DIMENSIONLESS DRAG MOMENT COMPONENT FIELD... DEFINED IN EQUATION (27)

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CASE 9=C

TABLE VIII=DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA ETA/HEIGHT	10.0 .585 17.9%	20.0 .522 9.9%	30.0 .436 .6%	50.0 .245 31.1%	75.0 .026 *****	100.0 149 41.6%	130.0 330 15.9%	180.0 391 27.3%
SURFACE	.000 *****	1.574 10.2%	2.078 3.9%	2.541 8.3%	2.485 16.3%	2.084 15.1%	1.124 4.8%	.000 *****
S/DEPTH=1.0	.000 *****	.952 5.0%	1.375 3.8%	2.033 3%	2.429 5.2%	1.213 1.1%	.768 4.2%	.000 *****
S/DEPTH=.9	.000 *****	.457 6.8%	.664 6.2%	.999 4.5%	1.224 1.7%	.607 6.5%	.388 4.7%	.000 *****
S/DEPTH=.8	.000 *****	.220 10.7%	.321 10.4%	.487 9.5%	.605 8.1%	.295 13.2%	.191 12.1%	.000 *****
S/DEPTH=.7	.000 *****	.105 *****	.154 15.2%	.234 14.8%	.292 14.0%	.137 19.2%	.090 *****	.000 *****
S/DEPTH=.6	.000 *****	.049 *****	.072 *****	.109 *****	.137 19.6%	.063 *****	.041 *****	.000 *****
S/DEPTH=.5	.000 *****	.022 *****	.032 *****	.049 *****	.062 *****	.027 *****	.018 *****	.000 *****
S/DEPTH=.4	.000 *****	.009 *****	.014 *****	.021 *****	.026 *****	.010 *****	.007 *****	.000 *****
S/DEPTH=.3	.000 *****	.004 *****	.005 *****	.008 *****	.010 *****	.003 *****	.002 *****	.000 *****
S/DEPTH=.2	.000 *****	.001 *****	.002 *****	.003 *****	.003 *****	.001 *****	.000 *****	.000 *****
S/DEPTH=.1	.000 *****	.000 *****	.000 *****	.001 *****	.001 *****	.000 *****	.000 *****	.000 *****
S/DEPTH=.0	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****

CASE 9=C

TABLE 1X=DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA ETA/HEIGHT	0 17.9%	10.0 5.85	20.0 9.9%	30.0 15.9%	40.0 22.2%	50.0 31.1%	60.0 41.6%	75.0 52.6%	100.0 67.9%	130.0 87.9%	180.0 117.9%
SURFACE	1.214	1.167	1.043	.872	.690	.522	.357	.207	.072	.000	.000
S/DEPTH=1.0	11.4%	10.1%	8.7%	7.2%	5.7%	4.2%	2.7%	1.2%	.000	.000	.000
S/DEPTH=.9	3.2%	2.9%	2.0%	.4%	.5%	.0%	.0%	.0%	.0%	.0%	.0%
S/DEPTH=.8	2.6%	2.3%	1.6%	.4%	.4%	.0%	.0%	.0%	.0%	.0%	.0%
S/DEPTH=.7	2.9%	2.6%	1.9%	.6%	.4%	.0%	.0%	.0%	.0%	.0%	.0%
S/DEPTH=.6	1.3%	1.0%	.0%	.1%	.9%	.0%	.0%	.0%	.0%	.0%	.0%
S/DEPTH=.5	.5%	.5%	.7%	.9%	2.1%	.0%	.0%	.0%	.0%	.0%	.0%
S/DEPTH=.4	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
S/DEPTH=.3	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
S/DEPTH=.2	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
S/DEPTH=.1	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%
S/DEPTH=.0	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%

CASE 9=C

TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.181	.308	.359	.290	.098	.050	.104	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.038	.032	.017	.006	.059	.095	.067	.062	.135
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.002	.001	.000	.001	.000	.001	.000	.001	.000

CASE 9=C

TABLE XI=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	1.133 (11.6%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.449 (-11.5%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.482 (-21.9%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.922 (-16.7%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.542 (-15.8%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.581 (.8%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.959 (-6.4%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.572 (1.4%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.030 (307.6%)

CASE 9=C

TABLE XI(CONT)-OVERALL WAVE PARAMETERS..., DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.180193	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.073121	STREAM FUNCTION	.000680
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.359110	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.135257	STREAM FUNCTION	.002209
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.600004	STREAM FUNCTION	.510651
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.341079	STREAM FUNCTION	.314589

CASE 9-D

5TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2$
 H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .169650 DPT/LO = .999996
 H/DPT = .169650
 L/LO = 1.210937 PSI/(G*H*T) = .015022

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = .781104*03 X(2)/(H*T*G) = .220209*06
 X(3)/(H*T*G) = .211929*09 X(4)/(H*T*G) = .255202*12
 X(5)/(H*T*G) = .595826*15

CASE 9=0

TABLE 1=DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA ETA/HEIGHT=	0 .661 24.4%	10.0 17.3%	20.0 2.7%	30.0 15.6%	40.0 31.7%	50.0 75.0	60.0 100.0	70.0 130.0	80.0 180.0
SURFACE	5.508	4.809	3.804	2.899	1.551	.366	.492	1.319	1.588
S/DEPTH=1.1	2.9%	7.7%	27.9%	48.7%	83.2%	150.9%	1.0%	21.12%	16.0%
S/DEPTH=1.0	6.4%	8.5%	2.352	2.075	1.356	.274	.305	1.022	1.288
S/DEPTH=.9	20.8%	21.9%	25.4%	31.0%	48.8%	.47%	.47%	25.6%	30.1%
S/DEPTH=.8	15.1%	14.28	17.0%	19.41%	27.33%	.183	.166	11.7%	14.82
S/DEPTH=.7	8.41	.826	.783	.715	.512	.115	.093	11.367	14.472
S/DEPTH=.6	6.4%	.66%	.61	.422	.307	.1%	.053	3%	1.2%
S/DEPTH=.5	3.0%	2.9%	2.6%	2.0%	.184	.071	.031	219	283
S/DEPTH=.4	12.3%	12.2%	.272	.250	.110	.043	.031	131	170
S/DEPTH=.3	.173	.170	.162	.149	.110	.043	.031	1079	103
S/DEPTH=.2	.104	.102	.097	.089	.066	.026	.018	1048	1063
S/DEPTH=.1	.063	.062	.059	.055	.041	.016	.011	1040	1040
S/DEPTH=.0	.041	.040	.038	.035	.026	.010	.007	1022	1029
S/DEPTH=.0	.029	.029	.027	.025	.019	.007	.005	1020	1025
S/DEPTH=.0	.025	.025	.024	.022	.016	.007	.004	1020	1025

TABLE II=DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD,...,DEFINED IN EQUATION (22)

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CASE: 9=0

TABLE 111-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	150.0	180.0
ETA/HEIGHT=	24.4%	.661	.595	.483	.375	.187	.002	.146	.291
		17.3%	2.7%	-15.6%	-72.0%	*****	40.3%	-31.7%	-47.7%
SURFACE	.000	11.904	16.722	17.445	15.804	13.743	11.016	5.723	.000
S/DEPTH=1.1	*****	51.4%	33.5%	10.4%	-34.6%	-59.1%	-60.7%	-47.3%	*****
	.000	11.768							
S/DEPTH=1.0	*****	50.8%							
	.000	4.269							
S/DEPTH= .9	*****	19.8%	7.956	10.695	13.349				
	.000	15.2%	15.2%	7.8%	-13.2%				
S/DEPTH= .8	*****	7.2%	3.795	5.365	7.521	8.446	7.815	4.616	.000
	.000	5.1%	5.1%	1.2%	7.3%	-20.4%	-32.6%	-46.6%	.000
S/DEPTH= .7	*****	1.032	2.013	2.898	4.551	5.027	4.823	2.938	.000
	.000	4.15%	4.15%	3.0%	-1.3%	-8.0%	-14.7%	-22.9%	.000
S/DEPTH= .6	*****	5.4%	1.126	1.633	2.445	2.974	2.923	1.825	.000
	.000	8.9%	8.9%	6.0%	1.3%	2.6%	-1.1%	-5.7%	.000
S/DEPTH= .5	*****	.330	.648	.943	1.426	1.762	1.757	1.116	.000
	.000	*****	*****	15.0%	14.0%	12.2%	10.2%	7.7%	.000
S/DEPTH= .4	*****	.193	.379	.553	.841	1.048	1.055	.677	.000
	.000	*****	*****	*****	22.0%	21.1%	20.0%	*****	.000
S/DEPTH= .3	*****	.114	.225	.329	.501	.628	.636	.411	.000
	.000	*****	*****	*****	*****	*****	*****	*****	.000
S/DEPTH= .2	*****	.069	.137	.200	.305	.384	.390	.253	.000
	.000	*****	*****	*****	*****	*****	*****	*****	.000
S/DEPTH= .1	*****	.044	.087	.127	.195	.246	.250	.163	.000
	.000	*****	*****	*****	*****	*****	*****	*****	.000
S/DEPTH= .0	*****	.032	.062	.091	.139	.176	.179	.117	.000
	.000	*****	*****	*****	*****	*****	*****	*****	.000
	.000	.028	.055	.080	.122	.154	.158	.103	.000
	.000	*****	*****	*****	*****	*****	*****	*****	.000

CASE 9=0

TABLE IV=DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.661	.595	.483	.375	.187	.002	.146	.291	.539
	24.4%	17.3%	2.7%	15.6%	72.0%	*****	40.3%	31.7%	47.7%
SURFACE	.11.653	.10.741	.7.688	.4.491	.237	3.645	7.076	10.322	11.539
S/DEPTH=1.1	.72.9%	.73.3%	.73.7%	.84.4%	*****	.110.5%	.67.3%	.42.3%	.51.7%
S/DEPTH=1.0	.12.131	.11.088	.9.726	.7.257	.1.961	.454	3.840	7.692	9.102
S/DEPTH=.9	.23.9%	.22.5%	.17.3%	.9.2%	.11.4%	*****	.25.4%	.43.7%	.48.3%
S/DEPTH=.8	.4.1%	.3.3%	.8%	.3.2%	.16.5%	.383	1.754	4.338	5.281
S/DEPTH=.7	.4.853	.4.746	.4.435	.3.941	.2.537	*****	.4.2%	.18.9%	.22.5%
S/DEPTH=.6	.1.8%	.1.4%	.2%	.1.9%	.8.8%	.457	.841	2.482	3.094
S/DEPTH=.5	.2.944	.2.888	.2.726	.2.465	.1.698	*****	.9.2%	.2.4%	.4.8%
S/DEPTH=.4	.6.4%	.6.1%	.5.2%	.4.5%	.7%	.351	.425	1.437	1.822
S/DEPTH=.3	.1.769	.1.738	.1.649	.1.503	.1.070	*****	*****	.9%	.8%
S/DEPTH=.2	.13.4%	.13.3%	.13.0%	.12.4%	.10.4%	.236	.225	.838	1.074
S/DEPTH=.1	.1.056	.1.038	.987	.994	.655	*****	*****	.19.7%	.18.6%
S/DEPTH=.0	.21.0%	.21.0%	.20.8%	.20.5%	*****	*****	*****	*****	*****
	.624	.614	.585	.557	.393	.148	.123	.489	.531
	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.361	.356	.339	.312	.229	.089	.068	.281	.364
	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.197	.194	.185	.170	.126	.049	.036	.152	.198
	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.087	.085	.081	.075	.055	.022	.016	.067	.087
	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA ETA/HEIGHT	0 24.4%	10.0 5.95 17.3%	20.0 .483 2.7%	30.0 .375 -15.6%	50.0 .187 -72.0%	75.0 -0.02 *****	100.0 .146 40.3%	130.0 -1.291 -31.7%	180.0 -1.559 -47.7%
SURFACE	2.303	1.874	1.259	.795	.258	.019	-.019	-.171	-.253
S/DEPTH=1.1	1.0%	-16.1%	-50.0%	-86.6%	-149.7%	*****	*****	-19.2%	-7.0%
S/DEPTH=1.0	16.1%	1.851	.501	.404	.191	*****	*****	*****	*****
S/DEPTH=.9	32.9%	34.4%	38.7%	45.9%	70.1%	*****	*****	*****	*****
S/DEPTH=.8	15.1%	15.7%	17.4%	20.3%	.071	*****	*****	*****	*****
S/DEPTH=.7	.067	.064	.058	.049	.026	*****	*****	*****	*****
S/DEPTH=.6	.023	.022	.020	.017	.009	*****	*****	*****	*****
S/DEPTH=.5	.008	.008	.007	.006	.003	*****	*****	*****	*****
S/DEPTH=.4	.003	.003	.003	.002	.001	*****	*****	*****	*****
S/DEPTH=.3	.001	.001	.001	.001	.000	*****	*****	*****	*****
S/DEPTH=.2	.000	.000	.000	.000	.000	*****	*****	*****	*****
S/DEPTH=.1	.000	.000	.000	.000	.000	*****	*****	*****	*****
S/DEPTH=.0	.000	.000	.000	.000	.000	*****	*****	*****	*****

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TABLE V=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	24.4%	.661	.483	.375	.187	-.002	-.146	-.291	-.359
		17.3%	2.7%	-15.6%	-72.0%	*****	40.3%	31.7%	-47.7%
SURFACE	.000	1.354	2.150	2.562	2.836	2.709	2.273	1.230	.000
S/DEPTH=1.1	*****	31.9%	17.5%	2.7%	-19.6%	-28.7%	-24.2%	-9.3%	*****
S/DEPTH=1.0	*****	51.3%	1.194	1.688	2.374				
S/DEPTH= .9	*****	12.0%	10.0%	6.8%	-1.4%	1.619	1.569	.969	.000
S/DEPTH= .8	*****	11.0%	10.2%	8.9%	1.357	-.2%	-5.3%	-11.3%	*****
S/DEPTH= .7	*****	15.2%	14.8%	14.2%	5.2%	.959	.948	.597	.000
S/DEPTH= .6	*****	.062	21.2%	27.9%	27.4%	26.7%	25.9%	24.9%	.000
S/DEPTH= .5	*****	.036	.071	.104	.159	.199	.202	.131	.000
S/DEPTH= .4	*****	.021	.042	.061	.093	.117	.119	.077	.000
S/DEPTH= .3	*****	.012	.024	.035	.054	.068	.069	.045	.000
S/DEPTH= .2	*****	.007	.013	.019	.029	.037	.037	.024	.000
S/DEPTH= .1	*****	.003	.006	.008	.013	.016	.016	.011	.000
S/DEPTH= .0	*****	.000	.000	.000	.000	.000	.000	.000	.000

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TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.661	.595	.483	.375	.187	.002	.146	.201	.539
	24.4%	17.3%	2.7%	-15.6%	-72.0%	*****	40.3%	31.7%	47.7%
SURFACE	2.369	1.902	1.249	.770	.240	.017	.017	.146	.214
S/DEPTH=1.1	3.2%	-14.8%	-51.2%	-91.3%	-161.7%	*****	-19.6%	-6.1%	
S/DEPTH=1.0	14.9%	-16.4%	.454	.366	.172				
S/DEPTH= .9	-34.6%	-36.1%	-40.7%	-48.3%	-74.0%	.007	.006	.082	.133
S/DEPTH= .8	17.1%	-17.7%	-19.6%	.136	.057	*****	.002	.026	.042
S/DEPTH= .7	.047	.045	.041	.034	.018	.002	.000	.008	.013
S/DEPTH= .6	.014	.014	.012	.010	.006	.001	.000	.000	.004
S/DEPTH= .5	.004	.004	.004	.003	.002	.000	.000	.002	.000
S/DEPTH= .4	.001	.001	.001	.001	.000	.000	.000	.001	.001
S/DEPTH= .3	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .2	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .1	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000	.000

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TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THEYTA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.661	.595	.483	.375	.187	.0002	.146	.291	.339
	24.4%	17.3%	2.7%	15.6%	72.0%	*****	40.3%	31.7%	47.7%
SURFACE	.000	1.294	1.993	2.301	2.414	2.193	1.772	.923	.000
S/DEPTH#1.1	*****	34.1%	18.0%	.9%	-25.6%	-37.2%	-31.7%	-13.1%	*****
S/DEPTH#1.0	*****	1.282							
S/DEPTH# .9	*****	33.4%							
S/DEPTH# .8	*****	11.2%	.993	1.397	1.945	1.153	1.110	.681	.000
S/DEPTH# .7	*****	.000	8.9%	5.3%	-4.2%	-4.3%	-10.4%	-17.5%	*****
S/DEPTH# .6	*****	.000	7.8%	6.3%	2.0%	.589	.580	.363	.000
S/DEPTH# .5	*****	.000	11.4%	.323	.484	5.6%	2.2%	-2.0%	*****
S/DEPTH# .4	*****	.000	12.1%	11.0%	8.9%	294	294	.187	.000
S/DEPTH# .3	*****	.000	.055	.157	.238	14.5%	12.6%	10.2%	*****
S/DEPTH# .2	*****	.000	.026	.075	.114	.143	.144	.092	.000
S/DEPTH# .1	*****	.000	.012	.035	.053	22.6%	21.6%	*****	*****
S/DEPTH# .0	*****	.000	.005	.015	.023	.067	.067	.043	.000
	*****	.000	.004	.006	.009	*****	*****	*****	*****
	*****	.000	.001	.002	.003	.012	.012	.008	.000
	*****	.000	.000	.000	.001	*****	*****	*****	*****
	*****	.000	.000	.000	.001	.004	.004	.003	.000
	*****	.000	.000	.000	.001	*****	*****	*****	*****
	*****	.000	.000	.000	.001	.001	.001	.001	.000
	*****	.000	.000	.000	.000	*****	*****	*****	*****
	*****	.000	.000	.000	.000	.000	.000	.000	.000
	*****	.000	.000	.000	.000	*****	*****	*****	*****

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TABLE IX=DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	24.4%	.661	.595	.483	.375	.187	.002	.146	.539
		17.5%	2.7%	15.0%	72.0%	*****	40.3%	31.7%	47.7%
SURFACE	1.303	1.193	.978	.758	.377	*****	-.293	-.584	-.681
S/DEPTH=1.1	23.1%	18.2%	8.2%	2.4%	19.0%	*****	5.1%	4.9%	10.8%
	1.254	1.190							
S/DEPTH=1.0	20.1%	18.0%							
	.819	.795							
S/DEPTH= .9	1.6%	.7%	.729	.628	.365				
	.503	.492	-2.1%	6.8%	-22.7%	.054	-.167	-.440	-.542
S/DEPTH= .8	.52%	.518%	.77%	.461	.272	*****	41.6%	6.0%	.7%
	.304	.299	7.7%	11.1%	24.6%	.052	-.082	-.254	.319
S/DEPTH= .7	10.0%	10.6%	12.4%	15.8%	30.6%	*****	100.1%	33.6%	26.2%
	.182	.179	.170	.155	.111	.037	-.043	-.148	.189
S/DEPTH= .6	19.0%	19.8%	22.2%	26.6%	46.4%	*****	*****	65.2%	53.8%
	.109	.107	.102	.093	.068	.024	-.024	-.087	-.112
S/DEPTH= .5	38.2%	39.4%	42.9%	49.6%	79.5%	*****	*****	108.2%	89.4%
	.065	.064	.061	.056	.041	.015	-.014	-.052	-.067
S/DEPTH= .4	*****	*****	*****	*****	*****	*****	*****	*****	140.5%
	.039	.038	.036	.033	.024	.009	-.008	-.031	-.041
S/DEPTH= .3	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.023	.023	.022	.020	.015	.005	-.005	-.020	-.025
S/DEPTH= .2	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.015	.015	.014	.013	.009	.003	-.004	-.015	-.016
S/DEPTH= .1	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.010	.010	.010	.009	.006	.002	-.003	-.009	-.012
S/DEPTH= .0	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.009	.009	.008	.008	.005	.002	-.003	-.008	-.011
S/DEPTH= .0	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	1.266	1.528	1.300	.699	.186	-.084	-.163	-.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	-.000	-.000	-.000	.000	-.000	-.000	-.000	-.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	-.001	.005	.021	.045	.097	.121	.067	-.105	-.196
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.010	-.001	-.006	-.004	-.002	-.001	.001	.001	.002

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TABLE XI=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	1.211 (17.3%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.382 (-30.9%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.429 (-53.0%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.811 (-42.6%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.513 (-42.4%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.633 (-.1%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.853 (-21.5%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.558 (-10.2%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.045 (358.3%)

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TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46)	
LINEAR	.646583 STREAM FUNCTION .000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47)	
LINEAR	.103706 STREAM FUNCTION .002664
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46)	
LINEAR	1.527811 STREAM FUNCTION .000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47)	
LINEAR	.196144 STREAM FUNCTION .009879
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48)	
LINEAR	.906048 STREAM FUNCTION .771611
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49)	
LINEAR	.410294 STREAM FUNCTION .314627

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3TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (g/6.28318) * T^2$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .042602 DPT/LO = 1.999993

H/DPT = .021301

L/LO = 1.01773 PSI/(G*H*T) = -.005282

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.691165-06 X(2)/(H*T*G) = -.356470-14

X(3)/(H*T*G) = -.382598-21

TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

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TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD... DEFINED IN EQUATION (23)

[illegible]

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TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.533	.523	.494	.446	.310	.097	.116	.374	.467
	6.3%	5.9%	4.8%	3.0%	3.7%	33.0%	25.0%	2.5%	7.2%
SURFACE	.513	.494	.443	.367	.187	.027	.011	.186	.301
S/DEPTH=1.0	.2%	.3%	.7%	1.4%	2.9%	4.9%	*****	1.1%	.1%
	.387	.375	.342	.290	.159	.026			
S/DEPTH= .9	1.6%	1.6%	1.6%	1.7%	2.0%	*****			
	.033	.032	.029	.025	.013	.002	.001	.019	.033
S/DEPTH= .8	2.3%	2.3%	2.3%	*****	*****	*****	*****	*****	2.2%
	.003	.003	.002	.002	.001	.000	.000	.002	.003
S/DEPTH= .7	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .6	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .5	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .4	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .3	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .2	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .1	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .0	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000

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TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA ETA/HEIGHT=	0 .533 6.3%	10.0 .523 5.9%	20.0 .494 4.8%	30.0 .446 3.0%	50.0 .310 3.7%	75.0 .097 33.0%	100.0 -116 25.0%	130.0 -374 25.5%	180.0 -467 7.2%
SURFACE	.000	.315	.615	.887	1.310	1.558	1.499	.912	.000
S/DEPTH=1.0	.000	1.0%	.8%	.5%	.2%	.9%	.9%	-.0%	.000
S/DEPTH= .9	.000	.274	.540	.789	1.207	1.519	.450	.293	.000
S/DEPTH= .8	.000	.079	.156	.229	.358	.482	1.9%	.085	.000
S/DEPTH= .7	.000	.023	.045	.066	.102	.128	4.0%	.025	.000
S/DEPTH= .6	.000	.007	.013	.019	.030	.037	.038	.007	.000
S/DEPTH= .5	.000	.002	.004	.006	.009	.011	.011	.002	.000
S/DEPTH= .4	.000	.001	.001	.002	.003	.003	.003	.001	.000
S/DEPTH= .3	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .2	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .1	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000	.000

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TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA ETA/HEIGHT=	0 533 6.3%	10.0 523 5.9%	20.0 494 4.6%	30.0 446 3.0%	50.0 310 3.7%	75.0 97 33.0%	100.0 116 25.0%	130.0 374 2.5%	180.0 467 7.2%
SURFACE	.496 .2% 1.6%	.480 -.3% -.16%	.430 -.8% 1.7%	.355 -1.4% -1.8%	.181 -3.0% 2.1%	.026 -5.1% *****	.011 ***** *****	.177 1.2% *****	.286 .1% *****
S/DEPTH=1.0	.371 2.3% 1.6%	.360 2.3% 2.3%	.328 2.3% 2.3%	.278 2.3% 2.3%	.153 2.3% 2.3%	.025 2.3% 2.3%	.001 2.3% 2.3%	.016 2.3% 2.3%	.028 2.3% 2.3%
S/DEPTH=.9	.028 2.3% 1.6%	.027 2.3% 2.3%	.025 2.3% 2.3%	.021 2.3% 2.3%	.012 2.3% 2.3%	.002 2.3% 2.3%	.001 2.3% 2.3%	.001 2.3% 2.3%	.002 2.3% 2.3%
S/DEPTH=.8	.002 2.3% 1.6%	.002 2.3% 2.3%	.002 2.3% 2.3%	.002 2.3% 2.3%	.001 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%
S/DEPTH=.7	.000 2.3% 1.6%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%
S/DEPTH=.6	.000 2.3% 1.6%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%
S/DEPTH=.5	.000 2.3% 1.6%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%
S/DEPTH=.4	.000 2.3% 1.6%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%
S/DEPTH=.3	.000 2.3% 1.6%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%
S/DEPTH=.2	.000 2.3% 1.6%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%
S/DEPTH=.1	.000 2.3% 1.6%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%
S/DEPTH=.0	.000 2.3% 1.6%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%	.000 2.3% 2.3%

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TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.533	.523	.494	.446	.310	.097	.116	.374	.467
	6.3%	5.9%	4.6%	3.0%	-3.7%	-33.0%	25.0%	-2.5%	-7.2%
SURFACE	.000	.293	.572	.824	1.212	1.435	1.374	.831	.000
	*****	1.0%	.8%	.4%	.4%	-1.1%	-1.1%	.2%	*****
S/DEPTH=1.0	.000	.252	.496	.725	1.109	1.396			
	*****	.5%	.2%	.2%	.1%	.1%			
S/DEPTH= .9	.000	.065	.128	.187	.267	.362	.368	.240	.000
	*****	*****	1.0%	1.0%	1.9%	1.8%	1.8%	1.7%	*****
S/DEPTH= .8	.000	.017	.033	.048	.073	.092	.094	.061	.000
	*****	*****	*****	*****	3.8%	3.8%	3.8%	*****	*****
S/DEPTH= .7	.000	.004	.008	.012	.018	.023	.024	.015	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .6	.000	.001	.002	.003	.004	.006	.006	.004	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .5	.000	.000	.000	.001	.001	.001	.001	.001	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .4	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .3	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .2	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .1	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA ETA/HEIGHT=	0 .533 6.32	10.0 .523 5.92	20.0 .494 4.82	30.0 .466 3.02	50.0 .310 -3.72	75.0 .097 -53.02	100.0 -116 25.02	130.0 -2374 -2.52	180.0 -1467 -7.22
SURFACE	1.067 1.02 .937 32 .285 1.62 2.22	1.047 .92 .922 32 .281 1.62 2.22	.987 72 .876 22 .267 1.52 2.12	.893 22 .802 22 .246 1.52 1.92	.820 -242 .577 -202 .181 1.22 1.02	.195 -1.42 .191 -282 .069 -242 .021	.252 -232 .057 5.02 -2016 -2005 -2002	.747 -232 -229 2.72 6.42 -2020 -2006 -2002	.934 -292 2.52 -2086 5.92 -2025 -2008 -2003
S/DEPTH=1.0	1.02 .937 32 .285 1.62 2.22	1.047 .92 .922 32 .281 1.62 2.22	.987 72 .876 22 .267 1.52 2.12	.893 22 .802 22 .246 1.52 1.92	.820 -242 .577 -202 .181 1.22 1.02	.195 -1.42 .191 -282 .069 -242 .021	.252 -232 .057 5.02 -2016 -2005 -2002	.747 -232 -229 2.72 6.42 -2020 -2006 -2002	.934 -292 2.52 -2086 5.92 -2025 -2008 -2003
S/DEPTH= .9	1.02 .937 32 .285 1.62 2.22	1.047 .92 .922 32 .281 1.62 2.22	.987 72 .876 22 .267 1.52 2.12	.893 22 .802 22 .246 1.52 1.92	.820 -242 .577 -202 .181 1.22 1.02	.195 -1.42 .191 -282 .069 -242 .021	.252 -232 .057 5.02 -2016 -2005 -2002	.747 -232 -229 2.72 6.42 -2020 -2006 -2002	.934 -292 2.52 -2086 5.92 -2025 -2008 -2003
S/DEPTH= .8	1.02 .937 32 .285 1.62 2.22	1.047 .92 .922 32 .281 1.62 2.22	.987 72 .876 22 .267 1.52 2.12	.893 22 .802 22 .246 1.52 1.92	.820 -242 .577 -202 .181 1.22 1.02	.195 -1.42 .191 -282 .069 -242 .021	.252 -232 .057 5.02 -2016 -2005 -2002	.747 -232 -229 2.72 6.42 -2020 -2006 -2002	.934 -292 2.52 -2086 5.92 -2025 -2008 -2003
S/DEPTH= .7	1.02 .937 32 .285 1.62 2.22	1.047 .92 .922 32 .281 1.62 2.22	.987 72 .876 22 .267 1.52 2.12	.893 22 .802 22 .246 1.52 1.92	.820 -242 .577 -202 .181 1.22 1.02	.195 -1.42 .191 -282 .069 -242 .021	.252 -232 .057 5.02 -2016 -2005 -2002	.747 -232 -229 2.72 6.42 -2020 -2006 -2002	.934 -292 2.52 -2086 5.92 -2025 -2008 -2003
S/DEPTH= .6	1.02 .937 32 .285 1.62 2.22	1.047 .92 .922 32 .281 1.62 2.22	.987 72 .876 22 .267 1.52 2.12	.893 22 .802 22 .246 1.52 1.92	.820 -242 .577 -202 .181 1.22 1.02	.195 -1.42 .191 -282 .069 -242 .021	.252 -232 .057 5.02 -2016 -2005 -2002	.747 -232 -229 2.72 6.42 -2020 -2006 -2002	.934 -292 2.52 -2086 5.92 -2025 -2008 -2003
S/DEPTH= .5	1.02 .937 32 .285 1.62 2.22	1.047 .92 .922 32 .281 1.62 2.22	.987 72 .876 22 .267 1.52 2.12	.893 22 .802 22 .246 1.52 1.92	.820 -242 .577 -202 .181 1.22 1.02	.195 -1.42 .191 -282 .069 -242 .021	.252 -232 .057 5.02 -2016 -2005 -2002	.747 -232 -229 2.72 6.42 -2020 -2006 -2002	.934 -292 2.52 -2086 5.92 -2025 -2008 -2003
S/DEPTH= .4	1.02 .937 32 .285 1.62 2.22	1.047 .92 .922 32 .281 1.62 2.22	.987 72 .876 22 .267 1.52 2.12	.893 22 .802 22 .246 1.52 1.92	.820 -242 .577 -202 .181 1.22 1.02	.195 -1.42 .191 -282 .069 -242 .021	.252 -232 .057 5.02 -2016 -2005 -2002	.747 -232 -229 2.72 6.42 -2020 -2006 -2002	.934 -292 2.52 -2086 5.92 -2025 -2008 -2003
S/DEPTH= .3	1.02 .937 32 .285 1.62 2.22	1.047 .92 .922 32 .281 1.62 2.22	.987 72 .876 22 .267 1.52 2.12	.893 22 .802 22 .246 1.52 1.92	.820 -242 .577 -202 .181 1.22 1.02	.195 -1.42 .191 -282 .069 -242 .021	.252 -232 .057 5.02 -2016 -2005 -2002	.747 -232 -229 2.72 6.42 -2020 -2006 -2002	.934 -292 2.52 -2086 5.92 -2025 -2008 -2003
S/DEPTH= .2	1.02 .937 32 .285 1.62 2.22	1.047 .92 .922 32 .281 1.62 2.22	.987 72 .876 22 .267 1.52 2.12	.893 22 .802 22 .246 1.52 1.92	.820 -242 .577 -202 .181 1.22 1.02	.195 -1.42 .191 -282 .069 -242 .021	.252 -232 .057 5.02 -2016 -2005 -2002	.747 -232 -229 2.72 6.42 -2020 -2006 -2002	.934 -292 2.52 -2086 5.92 -2025 -2008 -2003
S/DEPTH= .1	1.02 .937 32 .285 1.62 2.22	1.047 .92 .922 32 .281 1.62 2.22	.987 72 .876 22 .267 1.52 2.12	.893 22 .802 22 .246 1.52 1.92	.820 -242 .577 -202 .181 1.22 1.02	.195 -1.42 .191 -282 .069 -242 .021	.252 -232 .057 5.02 -2016 -2005 -2002	.747 -232 -229 2.72 6.42 -2020 -2006 -2002	.934 -292 2.52 -2086 5.92 -2025 -2008 -2003
S/DEPTH= .0	1.02 .937 32 .285 1.62 2.22	1.047 .92 .922 32 .281 1.62 2.22	.987 72 .876 22 .267 1.52 2.12	.893 22 .802 22 .246 1.52 1.92	.820 -242 .577 -202 .181 1.22 1.02	.195 -1.42 .191 -282 .069 -242 .021	.252 -232 .057 5.02 -2016 -2005 -2002	.747 -232 -229 2.72 6.42 -2020 -2006 -2002	.934 -292 2.52 -2086 5.92 -2025 -2008 -2003

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TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.008	.015	.019	.021	.009	.006	.015	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.028	.026	.020	.012	.010	.031	.029	.011	.038
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

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TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	1.018 (1.7%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.496 (-.9%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.502 (-.1.9%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.998 (-.1.4%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.509 (-.1.1%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.510 (-.3%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	1.000 (-.1.3%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.513 (-.1.1%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.005 (239.0%)

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TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.013156	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.023637	STREAM FUNCTION	.000097
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.021347	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.037514	STREAM FUNCTION	.000209
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.152703	STREAM FUNCTION	.149073
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.150650	STREAM FUNCTION	.129486

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3TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/g, 28318) * T ** 2$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .085218 DPT/LO = 1.999993

H/DPT = .042609

L/LO = 1.065234 PSI/(G*H*T) = -.009930

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.118895e05 X(2)/(H*T*G) = -.752306e13

X(3)/(H*T*G) = -.350184e19

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

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TABLE II=DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA =	0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	12.1%	.569	.513	.450	.286	.062	.137	.431
		11.2%	8.4%	-12.4%	-108.7%	36.7%	-7.5%	-16.0%
SURFACE								
S/DEPTH=1.0	.000	.706	1.357	1.911	2.656	2.939	2.672	1.541
	*****	.4%	1.7%	3.5%	-7.5%	-10.6%	-10.4%	-6.7%
	.000	.527	1.036	1.510	2.292	2.848		
	*****	-3.4%	3.6%	3.9%	-4.9%	-6.4%		
S/DEPTH= .9	.000	.158	.311	.454	.694	.871	.884	.574
	*****	1.6%	1.6%	1.5%	1.2%	.8%	.4%	.2%
S/DEPTH= .8	.000	.048	.095	.139	.212	.267	.272	.177
	*****	*****	*****	*****	8.0%	7.9%	7.8%	7.6%
S/DEPTH= .7	.000	.015	.029	.043	.065	.082	.084	.055
	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .6	.000	.005	.009	.013	.020	.025	.026	.017
	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .5	.000	.001	.003	.004	.006	.008	.008	.005
	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .4	.000	.000	.001	.001	.002	.002	.002	.002
	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .3	.000	.000	.000	.000	.001	.001	.001	.000
	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .2	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .1	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)									
THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	
STAIR/HEIGHT =	.569	.554	.513	.450	.286	.062	.137	.356	
	12.14	11.39	8.43	3.48	12.48	-108.72	16.72	-7.52	

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TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	12.1%	11.0%	8.4%	5.1%	4.50	.286	.157	-.356	-.431
				3.8%	-12.0%	-108.7%	36.7%	-7.5%	-16.0%
SURFACE	-17.539	-17.017	-15.530	-13.274	-7.038	.347	7.153	14.590	17.138
S/DEPTH=1.0	4.4%	3.9%	2.7%	.9%	-2.5%	*****	-12.8%	-8.3%	-6.1%
	-14.540	-14.216	-13.203	-11.724	-7.195	.177			
S/DEPTH= .9	.6%	.5%	.0%	-.7%	-2.9%	*****			
	-5.299	-5.210	-4.944	-4.511	-3.210	-1.002	1.440	4.720	5.997
S/DEPTH= .8	2.0%	2.0%	1.9%	1.6%	.8%	-2.4%	2.6%	-.3%	-.8%
	-1.704	-1.677	-1.598	-1.469	-1.077	-.406	.345	1.368	1.770
S/DEPTH= .7	8.1%	8.1%	8.0%	7.9%	7.7%	*****	*****	7.8%	7.6%
	-531	-523	-.099	-.459	-.340	-.134	.097	.013	.537
S/DEPTH= .6	*****	*****	*****	*****	*****	*****	*****	*****	*****
	-164	-.161	-.154	-.142	-.105	-.042	.029	.126	.164
S/DEPTH= .5	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.050	.050	.047	.044	-.032	-.013	.009	.039	.050
S/DEPTH= .4	*****	*****	*****	*****	*****	*****	*****	*****	*****
	-.016	-.015	-.015	-.013	-.010	-.004	.003	.012	.016
S/DEPTH= .3	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.005	.005	.004	.004	-.003	-.001	.001	.004	.005
S/DEPTH= .2	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.001	.001	.001	-.001	-.001	-.000	-.000	.001	.001
S/DEPTH= .1	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	-.000	-.000	.000	.000	.000
S/DEPTH= .0	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000

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TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	12.1%	11.2%	8.4%	3.8%	12.4%	108.7%	36.7%	7.5%	16.0%
SURFACE	.664	.634	.550	.435	.198	.024	.011	.148	.231
S/DEPTH=1.0	1.0%	1.9%	4.2%	7.7%	15.7%	*****	*****	3.4%	.5%
	.372	.360	.327	.276	.149	.022			
S/DEPTH= .9	5.7%	5.8%	6.3%	6.9%	9.2%	*****	*****	.020	.034
	.035	.033	.030	.026	.014	.002	.001	*****	6.3%
S/DEPTH= .8	7.6%	7.6%	*****	*****	*****	*****	*****	*****	*****
	.003	.003	.003	.002	.001	.000	.000	*****	6.3%
S/DEPTH= .7	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	*****	*****
S/DEPTH= .6	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	*****	*****
S/DEPTH= .5	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	*****	*****
S/DEPTH= .4	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	*****	*****
S/DEPTH= .3	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	*****	*****
S/DEPTH= .2	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	*****	*****
S/DEPTH= .1	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	*****	*****
S/DEPTH= .0	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	*****	*****

TABLE VI. DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

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TABLE VII=DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.569	.554	.513	.450	.286	.002	.137	.356	.431
	12.1%	11.2%	6.4%	3.8%	-12.4%	-108.7%	36.7%	-7.5%	-16.0%
SURFACE	.652	.622	.539	.425	.192	.023	.010	.140	.217
S/DEPTH=1.0	.1.0%	.1.8%	.4.3%	.7.9%	.16.2%	.021	.021	.3.5%	.5%
	.356	.345	.313	.264	.142	.021	.021	.017	.029
S/DEPTH=.9	.6.0%	.6.1%	.6.5%	.7.2%	.9.5%	.002	.001	.001	.002
	.030	.029	.026	.022	.012	.000	.000	.000	.000
S/DEPTH=.8	.002	.002	.002	.002	.001	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.7	.000	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.6	.000	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.5	.000	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.4	.000	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.3	.000	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.2	.000	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.1	.000	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000

TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

504

TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

505

CASE 1008

TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.045	.082	.104	.101	.040	.023	.052	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.043	.039	.028	.011	.030	.063	.053	.031	.082
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 10-B

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.065 (6.0%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.480 (4.1%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.499 (48.2%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.979 (46.2%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.528 (45.2%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.539 (49%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.992 (41.8%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.543 (2.8%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.016 (271.3%)

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TABLE XI(CONT)-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.060306	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.047496	STREAM FUNCTION	.000041
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.109646	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.082420	STREAM FUNCTION	.000070
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.349169	STREAM FUNCTION	.319433
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.246562	STREAM FUNCTION	.237878

CASE 10=C

3TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2$
H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
DPT = WATER DEPTH L = WAVE LENGTH
PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .127534 DPT/LO = 1.999993
H/DPT = .063767
L/LO = 1.134375 PSI/(G*H*T) = -.013600

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.237092E+05 X(2)/(H*T*G) = -.930477E+12
X(3)/(H*T*G) = -.183259E+17

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TABLE 1=DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA	0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0	140.0	150.0	160.0	170.0	180.0
ETA/HEIGHT	17.8%	15.7%	13.6%	11.5%	9.4%	7.3%	5.2%	3.1%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SURFACE	4.517	4.341	3.681	3.270	1.969	.563	.511	.511	.511	.511	.511	.511	.511	.511	.511	.511	.511	.511	.511
S/DEPTH=1.0	3.7%	5.6%	10.7%	17.6%	32.5%	60.1%	80.1%	80.1%	80.1%	80.1%	80.1%	80.1%	80.1%	80.1%	80.1%	80.1%	80.1%	80.1%	80.1%
S/DEPTH= .9	2.832	2.779	2.626	2.380	1.670	.555	.555	.555	.555	.555	.555	.555	.555	.555	.555	.555	.555	.555	.555
S/DEPTH= .8	10.8%	11.2%	12.5%	14.2%	20.8%	46.3%	46.3%	46.3%	46.3%	46.3%	46.3%	46.3%	46.3%	46.3%	46.3%	46.3%	46.3%	46.3%	46.3%
S/DEPTH= .7	8.9%	8.83%	8.40%	7.71%	5.63%	.215	.215	.215	.215	.215	.215	.215	.215	.215	.215	.215	.215	.215	.215
S/DEPTH= .6	4%	3%	0%	0%	2.0%	.187	.187	.187	.187	.187	.187	.187	.187	.187	.187	.187	.187	.187	.187
S/DEPTH= .5	13.0%	13.0%	12.9%	12.8%	12.7%	.025	.025	.025	.025	.025	.025	.025	.025	.025	.025	.025	.025	.025	.025
S/DEPTH= .4	10.9%	10.9%	10.9%	10.8%	10.7%	.008	.008	.008	.008	.008	.008	.008	.008	.008	.008	.008	.008	.008	.008
S/DEPTH= .3	0.03	0.03	0.03	0.03	0.02	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001
S/DEPTH= .2	0.01	0.01	0.01	0.01	0.01	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .1	0.00	0.00	0.00	0.00	0.00	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .0	0.00	0.00	0.00	0.00	0.00	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 10=C

TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA =	10.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.608	.435	.245	.026	.149	.331	.592
	17.8%	15.7%	9.8%	*****	41.9%	-15.6%	-27.6%
SURFACE	.000	.851	1.569	2.642	2.678	2.312	1.286
S/DEPTH=1.0	*****	5.0%	.3%	-17.7%	-25.6%	-24.7%	*****
	.000	.523	1.023	2.192	2.629	*****	*****
S/DEPTH= .9	*****	.4.2%	5.0%	9.7%	-15.3%	*****	*****
	.000	.159	.312	.691	.859	.863	.553
S/DEPTH= .8	*****	2.1%	1.9%	.8%	.6%	-2.1%	-3.9%
	.000	.051	.101	.225	.282	.186	.000
S/DEPTH= .7	*****	.017	.033	.074	.093	12.3%	11.8%
	.000	.006	.011	.024	.031	.095	.062
S/DEPTH= .6	*****	.002	.004	.008	.010	*****	*****
	.000	.001	.001	.002	.003	.003	.002
S/DEPTH= .5	*****	.000	.000	.001	.001	.001	.001
	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .4	*****	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .3	*****	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .2	*****	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .1	*****	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .0	*****	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000

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TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD, DEFINED IN EQUATION (23)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.608	.584	.521	.435	.245	.026	.149	.331	.392
	17.8%	15.7%	9.8%	5%	31.3%	*****	41.9%	15.6%	27.6%
SURFACE	.000	6.244	11.311	14.747	17.533	16.707	13.923	7.647	.000
	*****	18.7%	13.1%	5.4%	11.4%	26.5%	30.1%	22.0%	*****
S/DEPTH=1.0	.000	3.662	7.105	10.139	14.480	16.413			
	*****	6.5%	5.1%	2.7%	14.3%	16.1%			
S/DEPTH= .9	.000	1.033	2.026	2.944	4.428	5.423	5.169	3.389	.000
	*****	5.5%	5.1%	4.5%	2.8%	1.1%	3.1%	6.6%	*****
S/DEPTH= .8	.000	.325	.639	.933	1.422	1.777	1.795	1.157	.000
	*****	*****	*****	14.2%	13.7%	13.0%	12.1%	11.6%	*****
S/DEPTH= .7	.000	.106	.208	.304	.465	.585	.595	.386	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .6	.000	.055	.068	.100	.153	.193	.197	.128	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .5	.000	.011	.023	.033	.051	.064	.065	.042	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .4	.000	.004	.007	.011	.017	.021	.021	.014	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .3	.000	.001	.002	.004	.006	.007	.007	.005	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .2	.000	.000	.001	.001	.002	.002	.002	.002	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .1	.000	.000	.000	.000	.001	.001	.001	.001	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .0	.000	.000	.000	.000	.000	.001	.001	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)												
THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0			
ETA/HEIGHT=	17.6%	15.7%	9.8%	5.21	4.35	2.45	1.49	15.6%	27.6%			
				5%	-31.3%	*****	41.9%	-15.6%	*****			
SURFACE	15.540	-14.769	12.699	-9.867	-3.738	2.759	7.616	12.745	14.583			
S/DEPTH=1.0	23.6%	22.4%	19.2%	15.1%	14.3%	46.5%	32.1%	-20.7%	14.9%			
	-12.931	-12.531	11.368	9.544	-4.534	2.575	*****	100.0	130.0			
S/DEPTH=.9	8.5%	8.0%	6.4%	3.7%	-5.6%	8.0%	*****	75.0	180.0			
	5.165	-5.068	-4.181	-4.317	-2.947	-706	*****	100.0	130.0			
S/DEPTH=.8	3.6%	3.4%	2.9%	2.1%	-.8%	*****	3.3%	4.5%	6.1%			
	1.790	-1.761	-1.675	-1.534	-1.112	-.395	396	1.457	1.869			
S/DEPTH=.7	13.5%	13.4%	13.3%	13.0%	12.1%	*****	*****	12.3%	11.6%			
	5.000	5.591	5.563	5.518	5.182	5.148	114	469	609			
S/DEPTH=.6	5.199	5.196	5.187	5.172	5.128	5.051	536	154	200			
S/DEPTH=.5	5.066	5.065	5.062	5.057	5.042	5.017	512	551	566			
	5.022	5.021	5.020	5.019	5.014	5.006	504	517	522			
S/DEPTH=.4	5.007	5.007	5.007	5.006	5.005	5.002	501	506	507			
S/DEPTH=.3	5.002	5.002	5.002	5.002	5.002	5.001	500	502	502			
	5.001	5.001	5.001	5.001	5.000	5.000	500	501	501			
S/DEPTH=.2	5.000	5.000	5.000	5.000	5.000	5.000	500	500	500			
S/DEPTH=.1	5.000	5.000	5.000	5.000	5.000	5.000	500	500	500			
S/DEPTH=.0	5.000	5.000	5.000	5.000	5.000	5.000	500	500	500			

CASE 10=C

TABLE V=DIMENSIONLESS DRAG FORCE COMPONENT FIELD.....DEFINED IN EQUATION (25)

THETA =	0	10.0	20.0	30.0	40.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	17.8	15.7	9.8	5.2	4.3	2.4	.026	.419	15.6	32
SURFACE	.860	.799	.648	.470	.180	.017	.010	.016	.177	.0
S/DEPTH=1.0	1.5	5.0	15.6	25.4	50.6	.016	.010	.016	.0	.0
S/DEPTH= .9	13.2	13.7	15.1	17.5	26.1	.014	.001	.002	.034	.004
S/DEPTH= .8	.004	.004	.003	.003	.002	.000	.000	.000	.000	.000
S/DEPTH= .7	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .6	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .5	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .4	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .3	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .2	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .1	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 10=C

TABLE VI=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD, DEFINED IN EQUATION (26)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	17.8%	6.08	5.84	4.35	.245	.026	.149	.331	.392
		15.7%	9.8%	5%	-31.3%	*****	41.9%	-15.6%	-27.6%
SURFACE	.000	.474	.876	1.173	1.484	1.510	1.306	.728	.000
S/DEPTH=1.0	*****	14.6%	10.6%	5.3%	-5.0%	-11.6%	-10.6%	-2.82%	*****
	.000	.295	.516	.833	1.235	1.482	.489	.314	.000
S/DEPTH=.9	*****	7.3%	6.7%	5.6%	2.5%	-2.5%	9.8%	8.2%	.000
	.000	.090	.177	.258	.391	.487	.162	.105	.000
S/DEPTH=.8	*****	13.5%	13.3%	13.1%	12.3%	11.1%	22.6%	22.1%	.000
	.000	.029	.057	.083	.127	.160	.054	.035	.000
S/DEPTH=.7	*****	.010	.019	.027	.042	.053	*****	*****	.000
	.000	.003	.006	.009	.014	.017	.018	.012	.000
S/DEPTH=.6	*****	.001	.002	.003	.005	.006	.006	.004	.000
	.000	.000	.001	.001	.002	.002	.002	.001	.000
S/DEPTH=.5	*****	.000	.000	.000	.000	.001	.001	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.4	*****	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.3	*****	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.2	*****	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.1	*****	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.0	*****	.000	.000	.000	.000	.000	.000	.000	.000

CASE 10=C

TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.608	.584	.521	.435	.245	.026	.149	.331	.392
	17.6%	15.7%	9.8%	5%	-31.3%	*****	41.9%	-15.6%	-27.6%
SURFACE	.856	.794	.641	.462	.175	.016	.010	.109	.164
S/DEPTH=1.0	.1.5%	-4.8%	.13.7%	-25.9%	.52.3%	*****	*****	-7.6%	.1%
	.332	.321	.288	.240	.123	.016			
	-13.7%	-14.2%	-15.6%	-18.1%	-26.9%	*****			
S/DEPTH=.9	.031	.030	.027	.023	.012	.002	.001	.018	.029
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.8	.003	.003	.003	.002	.001	.000	.000	.002	.003
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.7	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.6	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.5	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.4	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.3	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.2	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.1	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 10=C

TABLE VIII=DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA	B	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	z	.608	.584	.521	.435	.245	.026	.149	.331	.392
		17.8%	15.7%	9.8%	5%	=31.3%	*****	41.9%	=15.6%	=27.6%
SURFACE		.000	.453	.832	1.107	1.378	1.377	1.174	.645	.000
S/DEPTH=.10		*****	14.9%	10.5%	4.8%	=6.4%	=13.6%	=12.5%	=3.4%	*****
S/DEPTH=.9		*****	.000	.269	.761	1.127	1.349	.396	.254	.000
S/DEPTH=.8		*****	.000	.073	.209	.517	.394	.86%	.68%	.000
S/DEPTH=.7		*****	.000	.021	.059	.091	.114	.115	.075	.000
S/DEPTH=.6		*****	.000	.006	.011	.026	.032	.033	.021	.000
S/DEPTH=.5		*****	.000	.002	.005	.007	.009	.009	.006	.000
S/DEPTH=.4		*****	.000	.000	.001	.002	.002	.002	.002	.000
S/DEPTH=.3		*****	.000	.000	.000	.000	.001	.001	.000	.000
S/DEPTH=.2		*****	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.1		*****	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.0		*****	.000	.000	.000	.000	.000	.000	.000	.000

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TABLE IX=DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA =	0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0	140.0	150.0	160.0	170.0	180.0
ETA/HEIGHT=	17.6%	15.7%	13.8%	11.9%	9.8%	7.8%	5.8%	3.8%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SURFACE	1.216	1.169	1.045	.873	.490	.050	.0299	.0663	.786										
S/DEPTH=1.0	11.5%	10.2%	6.8%	2.2%	.74%	.053	.026%	3.0%	7.0%										
S/DEPTH= .9	3.4%	3.1%	2.2%	.6%	.53%	.061	.077	.259	.350										
S/DEPTH= .8	2.9%	2.7%	2.0%	.6%	.186	.261	52.3%	20.7%	17.5%										
S/DEPTH= .7	5.7%	6.2%	7.7%	10.6%	23.3%	.024	.021	.083	.107										
S/DEPTH= .6	.011	.010	.010	.009	.006	.002	.003	.010	.012										
S/DEPTH= .5	.003	.003	.003	.002	.002	.000	.002	.004	.005										
S/DEPTH= .4	.000	.000	.000	.000	.000	.001	.001	.002	.002										
S/DEPTH= .3	.000	.000	.001	.001	.001	.001	.001	.001	.001										
S/DEPTH= .2	.001	.001	.001	.001	.001	.001	.001	.001	.001										
S/DEPTH= .1	.001	.001	.001	.001	.001	.001	.001	.001	.001										
S/DEPTH= .0	.001	.001	.001	.001	.001	.001	.001	.001	.001										

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TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.178	.303	.354	.287	.097	.049	.103	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.038	.033	.017	.006	.056	.094	.067	.062	.135
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.001	.002	.000	.001	.000	.000	.001

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TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH	
	DEFINED IN EQUATION (37)	
	.134 (11.8%)	
(2)	DIMENSIONLESS-AVERAGE POTENTIAL ENERGY	
	DEFINED IN EQUATION (38)	
	.450 (11.2%)	
(3)	DIMENSIONLESS-AVERAGE KINETIC ENERGY	
	DEFINED IN EQUATION (39)	
	.483 (21.4%)	
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY	
	DEFINED IN EQUATION (40)	
	.933 (16.5%)	
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX	
	DEFINED IN EQUATION (41)	
	.542 (15.5%)	
(6)	DIMENSIONLESS GROUP VFLOCITY	
	DEFINED IN EQUATION (42)	
	.581 (.9%)	
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM	
	DEFINED IN EQUATION (43)	
	.962 (6.1%)	
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION	
	DEFINED IN EQUATION (44)	
	.574 (1.8%)	
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION	
	DEFINED IN EQUATION (45)	
	.031 (300.7%)	

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TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.177997	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.072805	STREAM FUNCTION	.000719
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.354296	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.134600	STREAM FUNCTION	.001646
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.596771	STREAM FUNCTION	.507823
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.340150	STREAM FUNCTION	.315435

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3TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .170401 DPT/LO = 1.999993

H/DPT = .085201

L/LO = 1.222070 PSI/(G*H*T) = .015407

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.488993E-05 X(2)/(H*T*G) = -.863825E-11

X(3)/(H*T*G) = -.638304E-16

3.1.1. AUGMENTED HORIZONTAL VELOCITY COMPONENT FIELD DEFINED IN EQUATION (21)

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TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
FTH/HEIGHT=	.657	.603	.496	.385	.189	-.004	.148	.294	.343
	23.9%	18.4%	5.3%	-12.4%	-70.0%	*****	41.2%	-30.5%	-45.9%
SURFACE	.000	1.103	1.432	2.236	2.477	2.287	1.889	1.038	.000
S/DEPTH=1.0	*****	16.3%	3.1%	-11.5%	-36.9%	-52.2%	-49.1%	-29.1%	*****
S/DEPTH= .9	*****	.521	1.010	1.038	2.042	.810	.800	.504	.000
	*****	-4.6%	-6.5%	-9.1%	-17.8%	-6.6%	-10.2%	-14.1%	*****
S/DEPTH= .8	.000	.156	.305	.043	.664	.287	.289	.186	.000
	*****	.2%	.5%	1.0%	3.1%	-6.6%	13.2%	12.0%	*****
S/DEPTH= .7	.000	.053	.104	.051	.230	14.2%	.104	.067	.000
	*****	*****	*****	*****	*****	.102	*****	*****	*****
S/DEPTH= .6	.000	.07	.013	.019	.029	.037	.037	.024	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .5	.000	.002	.005	.007	.010	.013	.015	.009	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .4	.000	.001	.002	.002	.004	.005	.005	.003	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .3	.000	.000	.001	.001	.001	.002	.002	.001	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .2	.000	.000	.000	.000	.000	.001	.001	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .1	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 10=D

TABLE 11=DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.657	.603	.496	.385	.189	.004	.148	.294	.343
	23.9%	18.4%	5.3%	-12.4%	-70.0%	*****	41.2%	-30.5%	-45.9%
SURFACE	*****	9.439	15.104	17.518	17.186	13.804	10.638	5.990	.000
S/DEPTH=1.0	*****	38.6%	26.2%	10.6%	24.0%	58.5%	66.4%	40.5%	*****
S/DEPTH= .9	*****	4.078	7.776	10.782	14.099	5.131	4.900	3.005	.000
S/DEPTH= .8	*****	16.0%	13.3%	8.6%	7.1%	-5.8%	-12.9%	-20.2%	*****
S/DEPTH= .7	*****	1.059	2.067	2.976	4.362	1.813	1.806	1.146	.000
S/DEPTH= .6	*****	7.9%	7.0%	5.6%	1.3%	14.7%	12.7%	10.2%	*****
S/DEPTH= .5	*****	.340	.668	.972	1.470	.644	.551	.420	.000
S/DEPTH= .4	*****	*****	.231	.337	.514	*****	*****	*****	*****
S/DEPTH= .3	*****	.117	*****	*****	*****	.230	.233	.152	.000
S/DEPTH= .2	*****	.041	.082	.119	.183	*****	*****	*****	*****
S/DEPTH= .1	*****	*****	*****	.043	.065	.082	.084	.054	.000
S/DEPTH= .0	*****	.015	.029	*****	*****	.029	.030	.019	.000
	*****	.005	.010	.015	.023	.011	.011	.007	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
	*****	.002	.004	.005	.008	*****	*****	*****	.000
	*****	*****	*****	*****	*****	.004	.004	.003	.000
	*****	.001	.001	.002	.003	*****	*****	*****	.000
	*****	*****	*****	*****	*****	.002	.002	.001	.000
	*****	.000	.001	.001	.001	*****	*****	*****	.000
	*****	*****	*****	*****	*****	.001	.001	.001	.000
	*****	.000	.000	.000	.001	*****	*****	*****	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 10=D

TABLE 14-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

THETA =	10.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.657	.496	.385	.189	.004	.148	.343
	23.9%	18.4%	12.4%	-70.0%	*****	41.2%	45.9%
SURFACE							
S/DEPTH=.10	.11.375	.10.924	.08.892	.05.841	.04.065	.07.036	.10.281
	.74.0%	.75.5%	.79.3%	.90.9%	.80.0%	.68.7%	.42.7%
S/DEPTH=.09	.12.020	.11.485	.09.955	.07.640	.05.886		
	.23.6%	.22.6%	.19.7%	.14.4%	.13.4%		
S/DEPTH=.08	.04.961	.04.852	.04.532	.04.022	.02.570	1.805	4.423
	.4.0%	.3.6%	.2.4%	.3%	.7.2%	.1.5%	.16.7%
S/DEPTH=.07	.16.2%	.15.1%	.15.7%	.15.1%	.13.0%	.042	1.485
	.16.2%	.15.1%	.15.7%	.15.1%	.13.0%	.042	12.7%
S/DEPTH=.06	.31.7%	.31.7%	.31.6%	.25.6%	.24.1%	.131	5.17
	.31.7%	.31.7%	.31.6%	.25.6%	.24.1%	.131	30.7%
S/DEPTH=.05	.085	.083	.080	.073	.054	.015	.085
	.085	.083	.080	.073	.054	.015	.085
S/DEPTH=.04	.030	.030	.028	.026	.019	.005	.030
	.030	.030	.028	.026	.019	.005	.030
S/DEPTH=.03	.011	.011	.010	.009	.007	.002	.011
	.011	.011	.010	.009	.007	.002	.011
S/DEPTH=.02	.004	.004	.004	.003	.002	.001	.004
	.004	.004	.004	.003	.002	.001	.004
S/DEPTH=.01	.001	.001	.001	.001	.001	.000	.001
	.001	.001	.001	.001	.001	.000	.001
S/DEPTH=.00	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000

CASE 10*0

TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA =	10.0	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.657	.603	.496	.395	.305	.189	.004	.148	.294	.343
	23.9%	18.4%	5.3%	12.4%	70.0%			41.2%	30.3%	45.9%
SURFACE	.000	.638	1.071	1.319	1.479	1.378	1.145	.632	.000	.000
S/DEPTH=1.0	*****	27.6%	17.0%	5.3%	14.8%	26.5%	23.2%	6.2%	*****	*****
	.000	.313	.607	.864	1.228			.307	.000	.000
S/DEPTH= .9	*****	12.8%	11.3%	9.0%	1.9%	.494	.488	6.3%	*****	*****
	.000	.095	.186	.270	.405			.114	.000	.000
S/DEPTH= .8	*****	18.0%	17.6%	17.0%	15.3%	12.5%	9.6%	27.0%	*****	*****
	.000	.032	.063	.092	.141	.175	.177	.041	.000	.000
S/DEPTH= .7	*****	.011	.022	.033	.050	.062	.063	.023	*****	*****
	.000	.004	.008	.012	.018	.022	.023	.015	.000	.000
S/DEPTH= .6	*****	.001	.003	.004	.006	.008	.008	.005	*****	.000
	.000	.001	.001	.001	.002	.003	.003	.002	*****	.000
S/DEPTH= .4	*****	.000	.000	.000	.000	.000	.000	.000	*****	.000
	.000	.000	.000	.000	.000	.000	.000	.000	*****	.000
S/DEPTH= .3	*****	.000	.000	.000	.000	.000	.000	.000	*****	.000
	.000	.000	.000	.000	.000	.000	.000	.000	*****	.000
S/DEPTH= .2	*****	.000	.000	.000	.000	.000	.000	.000	*****	.000
	.000	.000	.000	.000	.000	.000	.000	.000	*****	.000
S/DEPTH= .1	*****	.000	.000	.000	.000	.000	.000	.000	*****	.000
	.000	.000	.000	.000	.000	.000	.000	.000	*****	.000
S/DEPTH= .0	*****	.000	.000	.000	.000	.000	.000	.000	*****	.000
	.000	.000	.000	.000	.000	.000	.000	.000	*****	.000

CASE 10=D

TABLE VII=DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THE TA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.557	.603	.496	.385	.189	.004	.148	.294	.343
	23.5%	18.4%	5.3%	12.4%	70.0%	*****	41.2%	30.3%	45.9%
SURFACE	1.152	.973	.669	.420	.129	.009	.010	.081	.120
S/DEPTH=1.0	.5%	.12.6%	.41.7%	.76.9%	.147.2%	*****	*****	.16.4%	.2.9%
	.292	.280	.248	.200	.094				
S/DEPTH= .9	.29.4%	.30.7%	.34.6%	.41.4%	.66.8%			.016	.027
	.030	.029	.026	.022	.011	.002	.001	.002	.003
S/DEPTH= .8	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.003	.003	.003	.002	.001	.000	.000	.000	.000
S/DEPTH= .7	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .6	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .5	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .4	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .3	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .2	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .1	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .0	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000

TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

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TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.657	.603	.496	.385	.189	.004	.148	.294	.343
	23.9%	18.4%	5.1%	-12.4%	-70.0%	*****	41.2%	30.3%	45.9%
SURFACE	1.299	1.213	1.019	.795	.381	.014	.298	.592	.697
S/DEPTH=1.0	23.0%	19.7%	12.1%	2.7%	-17.3%	*****	-3.4%	6.4%	13.1%
	.834	.812	.747	.646	.371				
S/DEPTH= .9	3.5%	2.7%	.3%	-3.8%	-20.8%	.053	.084	.261	.328
	.314	.308	.291	.264	.184				
S/DEPTH= .8	-6.7%	-7.3%	-9.1%	-12.5%	-27.2%	*****	101.1%	35.7%	28.5%
	.114	.112	.107	.098	.071	.026	.024	.090	.116
S/DEPTH= .7	-33.1%	-34.2%	-37.7%	-44.1%	-72.7%	*****	*****	109.1%	90.7%
	.041	.040	.038	.035	.026	.010	.008	.032	.041
S/DEPTH= .6	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.015	.014	.014	.013	.009	.004	.003	.011	.015
S/DEPTH= .5	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.005	.005	.005	.004	.003	.001	.001	.004	.005
S/DEPTH= .4	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.002	.002	.002	.001	.001	.000	.000	.002	.002
S/DEPTH= .3	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.001	.001	.000	.000	.000	.000	.000	.001	.001
S/DEPTH= .2	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .1	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .0	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000

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TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	1.349	1.594	1.337	.710	.188	-.085	-.164	-.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	-.000	-.000	.000	.000	.000	.000	-.000	-.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	-.000	.006	.022	.046	.098	.121	.067	-.106	-.197
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.008	-.003	-.013	-.012	-.002	.003	.001	.002	.006

CASE 10=D

TABLE XI=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	1.222	(16.1%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.392	(27.4%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.444	(30.8%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.836	(58.4%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.531	(38.0%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.635	(45.3%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.883	(62.7%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.580	(41.6%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.049	(3.5%)

CASE 10-D

TABLE XI(CONT)-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.671380	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.104352	STREAM FUNCTION	.005430
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	1.593790	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.197350	STREAM FUNCTION	.013568
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.912193	STREAM FUNCTION	.738335
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.411345	STREAM FUNCTION	.321853

<p>Dean, Robert G. Evaluation and development of water wave theories for engineering applications. Fort Belvoir, Va., U.S. Coastal Engineering Research Center, 1974.</p> <p>2v. illus., charts. (U.S. Coastal Engineering Research Center. Special report no. 1) (U.S. Coastal Engineering Research Center. Contract DACW72-67-C-0009). Bibliography: p.97-98.</p> <p>Report in two volumes. Volume I presents the results of a research program to evaluate and develop water wave theories for engineering application. Volume II presents wave tables developed for preliminary design in offshore problems.</p> <p>1. Water waves - Mathematical analysis. 2. Wave theory. 3. Water waves - Tables. 4. Coastal engineering. 1. Title. (Series) (Contract)</p> <p>TC203 .U581sr no. 1 627 .U581sr</p>	<p>Dean, Robert G. Evaluation and development of water wave theories for engineering applications. Fort Belvoir, Va., U.S. Coastal Engineering Research Center, 1974.</p> <p>2v. illus., charts. (U.S. Coastal Engineering Research Center. Special report no. 1) (U.S. Coastal Engineering Research Center. Contract DACW72-67-C-0009). Bibliography: p.97-98.</p> <p>Report in two volumes. Volume I presents the results of a research program to evaluate and develop water wave theories for engineering application. Volume II presents wave tables developed for preliminary design in offshore problems.</p> <p>1. Water waves - Mathematical analysis. 2. Wave theory. 3. Water waves - Tables. 4. Coastal engineering. 1. Title. (Series) (Contract)</p> <p>TC203 .U581sr no. 1 627 .U581sr</p>
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